NOVEMBER 1934

COMMERCIAL CAR JOURNAL

ton Speedwagon Panel Body $695

1½-ton Speedwagon Chassis $595

-ton Speedwagon Chassis $595
-ton Speedwagon Panel Body $695
cial Equipment Extra, Prices f.o.b. Lansing.
s tax.

Speedwagons range from ½ to 4-6 tons, tractor-ler units with correct load distribution and ximum pay-load capacity.

rs Magazine Chassis Lubrication standard on and 4-6 ton models; available at slight extra on other models.

REO

peedwagons and Trucks

lt and sold to Precision Standards. Use the Performance Gauge in selecting your next truck.

NRA

TWO GREAT NEW TRUCKS BY REO

Thirty years of better-value-building laid the foundation for these new trucks—the ½-ton Reo Speedwagon and the 1½-ton Reo Speedwagon—and they excel even the greatest Reo values of the past! Both units, in fact, represent so much more truck for the money that good business judgment literally demands consideration of Reo before any decision is made on new equipment.

•

WRITE FOR BOOKLET "BUY ON FACTS"

EO MOTOR CAR COMPANY, LANSING, MICHIGAN

GENERAL MOTORS T-18

A Low-Priced All-Purpose Truck

$675

CHASSIS F.O.B. PONTIAC

For only a few dollars more than the lowest-priced 1½-ton trucks, you can own this quality-built GMC T-18 of ample capacity for the job. During its lifetime, its small extra cost will be saved several times over, through lower operating and upkeep costs.

This GMC T-18 is a big, husky, capable 2-3 ton producer. It will haul loads and maintain schedules in a way you wouldn't expect from lighter and cheaper trucks. Yet it carries no needless weight to eat up gas, oil and tire dollars.

Like all other General Motors Trucks, the T-18 is "engineered for the job." Its wheelbase lengths are longer—140¾" and 164¾". Its weight distribution conforms to S.A.E. standards. It has many outstanding design features, including heavier frame; full-floating rear axle *with straddle-mounted pinion* for maximum strength and longer life; stronger, drop-forged wheels; modern, centrifuse brake drums that save on upkeep; and a valve-in-head GMC engine whose higher sustained torque insures faster deliveries, more trips, greater profit. And best of all, this worker and earner is $80 lower in price than the average of other trucks of comparable size.

A General Motors Truck representative will be glad to supply additional information. A phone call will bring him to your place of business.

GENERAL MOTORS TRUCKS AND TRAILERS

GENERAL MOTORS TRUCK COMPANY — Time Payments Available Through Our Own Y. M. A. C. — PONTIAC, MICHIGAN

COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

Reg. U. S. Pat. Off.

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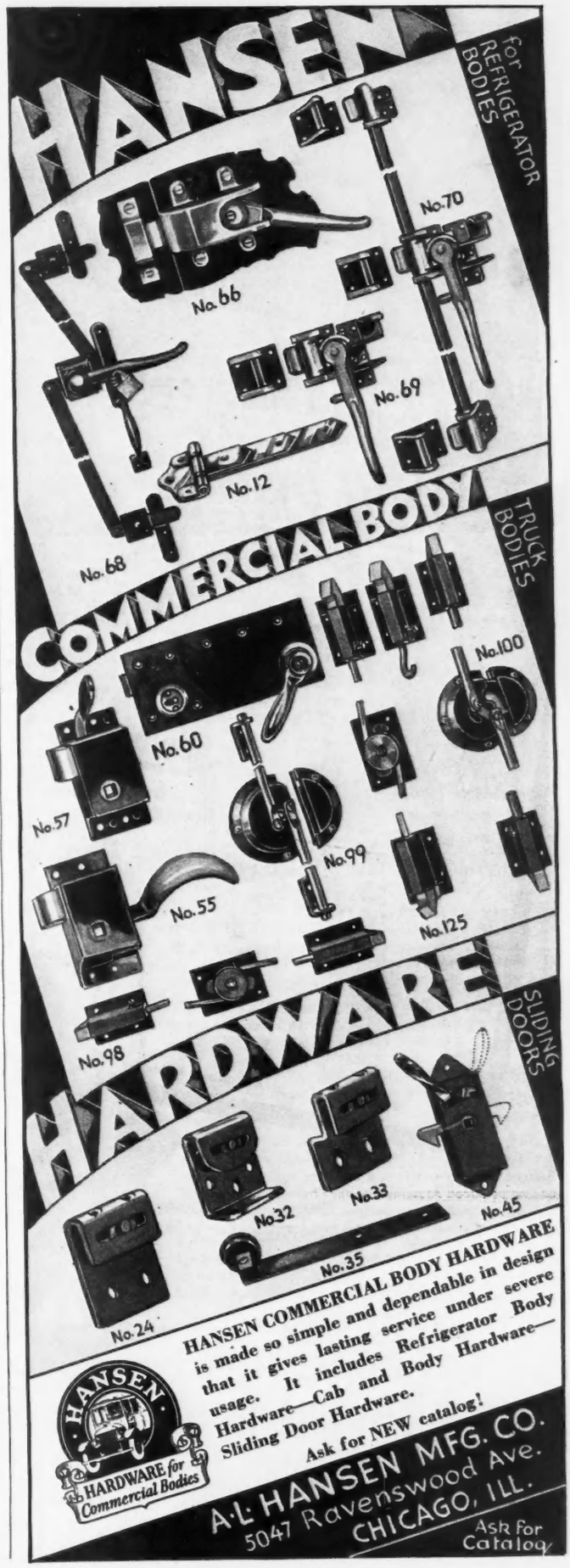


ALCOA ALUMINUM *did these 3 things* FOR GRIFFIN

E. L. GRIFFIN, PRES. & MANAGER
T. S. WILLIAMSON, TREASURER

GRIFFIN FUEL COMPANY
1610 COMMERCE STREET TACOMA, WASHINGTON
BROADWAY 1188

August 15, 1934

ASSOCIATED
FUEL
OILS
COAL
WOOD
SAWDUST

Aluminum Company of America
1005 White Building
Seattle Washington

Attention Howard W Flye

Gentlemen:

It may be of interest to you to know that in buying our three unit aluminum hogged fuel body that we increased our pay load one-third and saved over one ton of weight. It was necessary to reduce our weight by one ton in order to be within the State Highway limit of 24,000 gross pounds for a four-wheeled vehicle.

By this additional pay load we paid completely for the aluminum body within three months. Our cost records show that at the end of the year we had a further saving of a decreased operating cost per unit because of the reduced body weight.

We feel satisfied that even if we had not increased our pay load, we would have been able to pay for the aluminum body out of the saving of operating cost within two years' time.

The Isaacson Iron Works built a splendid body and we have had no cost whatever for repairs and, of course, no paint has been necessary during the time we have had it.

We are more than pleased with this unit and are very glad to inform you of this fact. If there is any other information or help that we can give you, we will be more than glad to do so.

Very truly yours,

GRIFFIN FUEL COMPANY

By Edwin L Griffin
EDWIN L GRIFFIN
Manager

ELG:Z

DEPENDABLE FUEL SERV... 1888

INCREASED PAY-LOAD 1/3
SAVED OVER ONE TON WEIGHT

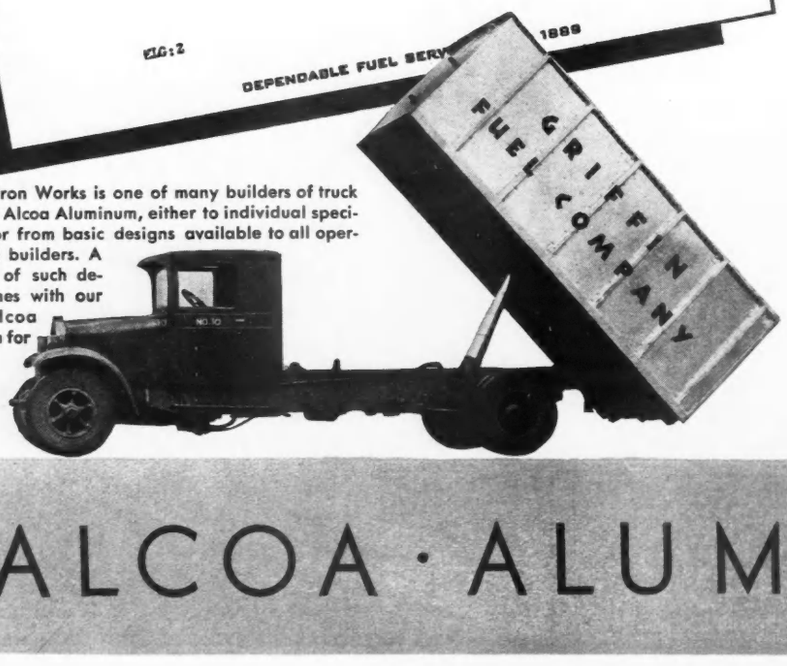
★

FURTHER DECREASED
OPERATING COST

★

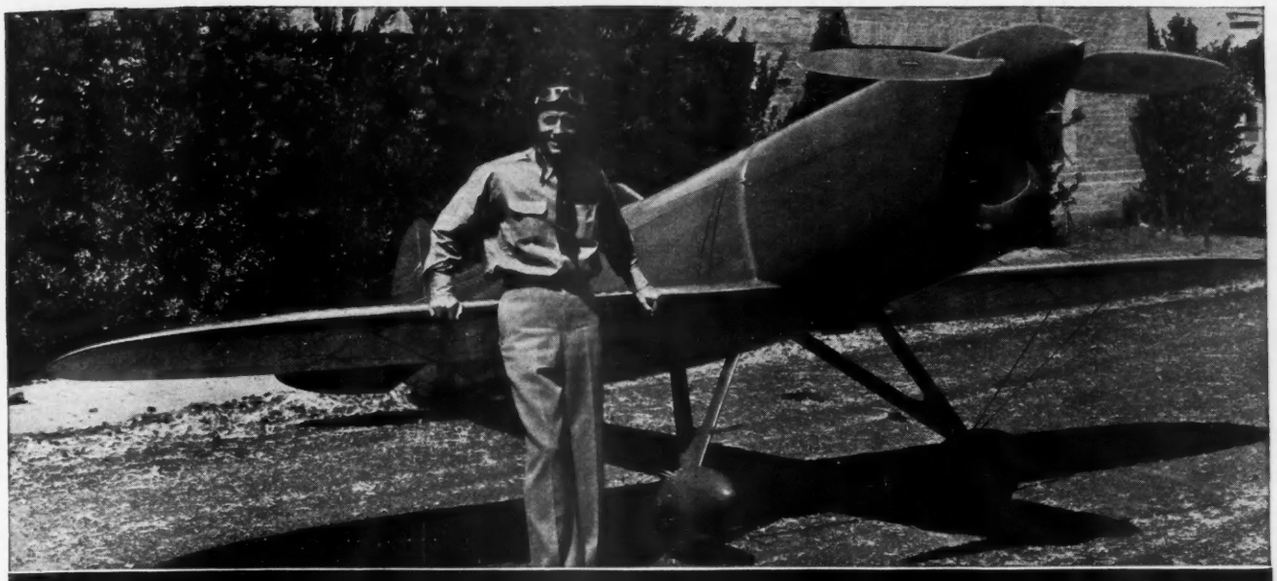
WITH NO REPAIR COST!

● Every line of Mr. Griffin's letter could well be quoted as an important reason why you will not only save money, but also *make* money by specifying Alcoa Aluminum for your next truck body. You can obtain the same kind of savings and increase *your* pay-load, whether it is coal, stone, gasoline, furniture, or general merchandise. We are happy to work with you or your builder on whatever your specific problem may be. Address ALUMINUM COMPANY OF AMERICA, 1839 Gulf Building, Pittsburgh, Pa.



Isaacson Iron Works is one of many builders of truck bodies of Alcoa Aluminum, either to individual specification, or from basic designs available to all operators and builders. A portfolio of such designs comes with our book, Alcoa Aluminum for Truck Bodies.

ALCOA · ALUMINUM



MENASCO ENGINES—LEADERS AT NATIONAL AIR RACES!

Proving Again FEDERAL-MOGUL'S *Leadership!*

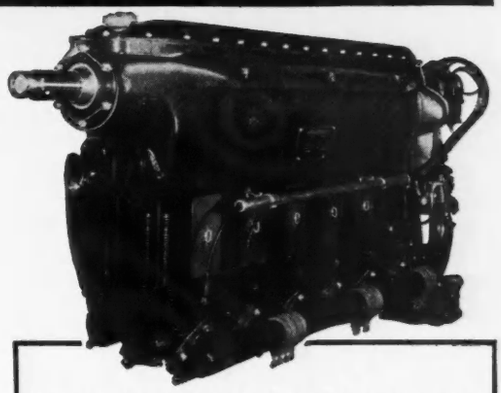
Airplanes powered by Menasco engines won 30 out of 40 prizes in the National Air Races this year, duplicating their feat of 1933.

Just as Menasco airplane engines are equipped with Federal-Mogul bearings, so are the quality automotive products of America. Where quality counts, automotive manufacturers —car, truck, bus, tractor, marine, airplane and stationary power plants—standardize on Federal-Mogul.

For over 30 years, Federal-Mogul has been the source of better bearings, of expert engineering counsel and dependable service. We are in a strategic position, with the knowledge and facilities, to solve any bearing problem for you and to economically supply your requirements. When it's a question of bearings, think of Federal-Mogul. Federal-Mogul engineers will gladly cooperate with you.

FEDERAL-MOGUL CORPORATION

Operating Watkins Babbitting Service • DETROIT, MICHIGAN



MENASCO MANUFACTURING COMPANY
Los Angeles, U. S. A.

September 24, 1934

Gentlemen:

In reply to yours of September 10th, regarding the victories of the Menasco engines at the National Air races.

The Federal-Mogul parts used in these engines were camshaft bushings, intake valve guides, and all of the rod and main bearings.

The 6-cylinder engines, and for that matter most of the 4-cylinder engines also, were putting out approximately 50 horsepower per cylinder in this competition, and you can well understand that the connecting rod and main bearing loads were rather severe at this output.

That we used Federal-Mogul bearings in both the connecting rod and main bearing applications is evidence of our opinion that we consider them the best for the purpose.

Very truly yours,
MENASCO MANUFACTURING COMPANY
A. S. Menasco

Mogul FEDERAL

CONNECTING ROD BABBITTING SERVICE
CRANKSHAFT BEARINGS · PISTON PIN BUSHINGS
CONNECTING ROD BOLTS AND NUTS
LAMINUM SHIMS

The Overload

Odd Items and Comments—Not All Odd—Garaged in This Spot to Entertain, Amuse and/or Amaze You

One for the Book

FOR the perfect description of railroads, which damns while it describes, give first prize to Judson C. Welliver, of the Sun Oil Co. Speaking to full stomachs at a luncheon during the recent American Trucking Association's convention in Chicago he stimulated digestive functions with this capsule cathartic: "The rails are the hardened arteries of our transportation system."

There must have been at least one truckman present who didn't applaud this sally, because a short time later through a hotel room transom filtered this remarkable bit of sentiment: "You ——— (refiltered) ——— will all starve to death if you don't make deals with the railroads!" There were those who recognized the voice of a well-known truckman.

Like a Pink Tea

APPARENTLY the average man's idea of a truckman is a bruiser who snarls at you from behind a big lump of plug tobacco, who always gets stewed when he's out on a party, and who is ready to fight at the drop of a hat—anybody's hat. If bleeding stumps are missing from his lecherous grin it's probably because he has a set of store-teeth. Some impression like this must have been conveyed to the management of the Chicago hotel where the ATA convention was held, to judge by the sober statement of a bartender to a sober delegate. The hotel management, quoth the bartender, was completely surprised by the civilized behavior of the truckmen. It had expected a lot of brawls and was prepared for trouble, but none materialized. This was a pleasant surprise; but the unpleasant surprise was the fact

that the land-office business in firewater expected at the bar didn't materialize either.

Floor Show De Luxe

NOT even bankers conferring to reject a business loan could be more dignified than the truckmen at their first annual convention. The dignity even affected the entertainment. As a veteran attender of truck association picnics and banquets the writer has had choice opportunities to study nature in the raw. The stomach dancers

and fanny fanners have given him sundry pains in both of these exploited anatomical regions. So it gave him pleasure—and favorable comment on this was general—that the banquet entertainment was artistic and high class and would have done credit to a Ziegfeld. The orchid belongs to Chester G. Moore, chairman of the entertainment committee.

It Happened One Night

WHILE the men were banquetting, the wives of some of them were enjoying an experience which is the most amusing tidbit of the convention. Chaperoned by Mrs. Ted V. Rodgers and Mrs. Edward L. Loomis the women repaired to Old Heidelberg, a charming night-spot. As the night wore on the party wore swell. The maids made merry and, as merry maids will, they made friends with some merry men at an adjoining table. During the informal introductions one man, more alert than the rest, in acknowledging, said to Mrs. Rodgers: "Are you by chance the wife of Ted V. Rodgers, president of the American Trucking Association?" Her proud admission exploded a mirthsome bombshell of giddy adventure. Ho! ho! ho! and ha! ha! ha! The men were all railroad men. So they proceeded to enjoy the joke on their embattled industries.

A truckload of truckmen's wives at the Ford exhibit in Chicago

Code Beats Alimony

SPEAKING of wives recalls the observation of Frank C. Schmidt, Toledo common carrier, member of the National Code Authority and premier basso profundo of the trucking industry, that the code should have the support of all truckmen's wives because it provides that they shall be paid for services rendered in connection with their husband's businesses. The wife has a better thing than alimony, Frank says, because she can collect under the code, and can even collect back wages. Who knows, the trucking code may be responsible for the enforcement of domestic tranquillity.

(TURN TO PAGE 10, PLEASE)

"We Have Sold 1800 INTERNATIONAL TRUCKS"

P. D. COCHRAN, Orange State Motor Co.

P. D. COCHRAN

S. J. RUDASILL

ORANGE STATE MOTOR COMPANY
(INCORPORATED)

MOTOR TRUCKS
GROVE TRACTORS
FARM TRACTORS
INDUSTRIAL TRACTORS

INTERNATIONAL

GROVE MACHINERY
POWER MACHINERY
FARM IMPLEMENTS
MOWERS—RAKES

Corner Madison and Brush Sts.

Phones 3570 3577

TAMPA FLA.

Tampa, Florida

August 15, 1934

International Harvester Company of America,
606 South Michigan Avenue,
Chicago, Illinois

Gentlemen:

Our company was formed in 1921 and since that time we have sold approximately 1,800 International trucks in this section of Florida. Out of this number, we don't believe we have had a single customer feel that he did not get his money's worth. Each user is a friend and gladly assists us to increase our family of owners.

We like the International. First, because we believe it is the best truck on the market. Second, we have a complete line, ranging from one-half-ton capacity up. Third, service is world-wide and many superior features, including replaceable cylinder construction, offer wonderful selling arguments, and last but not least, their performance backs up all of our claims.

The Harvester Company's liberal policies, note acceptance plan and after sales consideration, makes the International contract pleasant and profitable.

We wouldn't trade the International line for any other, because there would be no good sense in swapping off the best.

Yours very truly,

ORANGE STATE MOTOR COMPANY, INC.

P. D. Cochran

pdc-er

P. D. COCHRAN

S. J. RUDASILL

THE record of the Orange State Motor Co., Tampa, Fla., proves that a successful business can be built with the International Truck franchise. Consider the possibilities in your own community. The complete new line of beautifully streamlined International Trucks offers you more opportunity than ever to get the truck business in your territory.

Here Is What International Offers:

A complete line of trucks from ½-ton to 10-ton. A reputation without equal for quality and after-sale service. 215 *International Harvester branches offering International dealers the closest possible assistance in sales and service. International Truck finance plan on both new and used trucks.* Largest advertising campaign of any full-line truck manufacturer, constantly promoting the sale of Internationals in national magazines, newspapers, vocational publications, and through direct-mail.

Call the nearest International Branch for full details about the International Truck contract in your territory.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(*Incorporated*)
606 So. Michigan Ave. Chicago, Illinois

THE OVERLOAD

(Continued from Page 8)

Gas Tax Papa

THE gas tax is a lot better known than its father. The father is a reputable gentleman. The child is laboring under a stigma, not so much of birth as of upbringing. The father is C. C. Chapman of Portland, Ore., and he has lived to see his child produce about four billions of dollars in revenue since 1919, when Oregon was the first State to legalize its adoption. Since then it has been adopted by every State in the Union and not a few of the States have exploited it for purposes which were not in the beginning and are not now sanctioned by Pa Chapman. That's Pa's picture above. Don't blame him for what happened. He hates gas tax diversion as much as you do—maybe more if you haven't given it thought.

He Moves Presidents

WHEN it comes to moving the illustrious and politically powerful, some sort of record belongs to Arthur C. Smith, Washington, D. C., truckman. Mr. Smith operates 17 trucks. In his time he has moved two presidential households and the cabinet members of four administrations. It's evidently all in the day's work with him, because he didn't get excited about our asking him for his picture. In fact your not seeing his picture here will give you a perfect idea of his reaction. (Editor's Note: Mr. Smith came through at press time. We'll fill that empty frame in January.)

No Stopping Progress

PROGRESS means change. And that goes for everything —even the fuel you now are using in your motor vehicles. How the petroleum industry's progressives feel about fuel was well expressed by J. Howard Pew, president of the Sun Oil Co., before the House committee investigating the oil industry and the need for Federal legislation: "I am not in favor of preserving supplies of petroleum for the use of generations yet unborn. I predict that within my lifetime, and yours, we will see our present dependence on the motor power derived from petroleum and its products outmoded, or at least obsolescent." Remember the spirit back of that prediction if ever you begin to doubt the automotive industry's ability to keep up the phenomenal progress of the past.

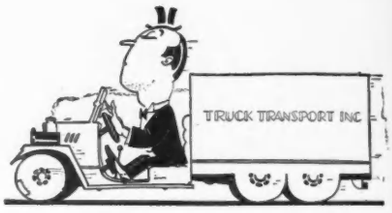
Who's the Driver?

A LOT has been said in this department about wives (God bless them) but taking the position that you can't say too much about a good thing, we must make mention of business use to which Ted V. Rodgers puts the wives of his drivers. Ted is a bug on safety,

and if one of his drivers is guilty of a violation he penalizes him by laying him off. But being wise he knows that the driver will give his wife a different excuse for laying around the house a day or two and coming home with a slim pay envelope. So the minute a driver is penalized the driver's wife is called on the telephone and told the exact cause. Ted, in other words, is using the wives to keep his drivers alert and safety-conscious. Smart, eh boss?

It's a Profession

ONE could hardly say that truck drivers are being starved by their employers. Analyzing a survey made of 372 trucking operations by the Federal Coordinator of Transportation,



Dr. Isadore Lubin of the U. S. Department of Labor, came up with comparative figures showing that last year in intercity hauling the top monthly wage paid drivers by railroads was $216 monthly; by common carriers $200, and by private industrial and commercial carriers $200. In local hauling the railroad top was $180, the common carrier was $215, and the contract carrier was $220. Given nation-wide publicity this item ought to raise truck-driving to a standing as one of the lucrative professions.

Our Ear's Good, Too

COMPETITION is the spice of trade and of writing a department such as this. That's why it will always tickle us to scoop the snooty Ears to the Ground department (p. 12). And we don't mean to begin the scooping next month or next year, but r-r-right now! So come a little closer: Present plans call for Ford's making a private showing to dealers on Dec. 14. The new job is expected to throw you into spasms of joy with its appearance — niftily streamlined. It will have crankcase ventilation and changes in water pump, clutch, distributor and brakes. There's even some whispering of a big boost in horsepower. The spasms will be all ours if the big-eared boys nail this as another rumor.

GRIP? HOLD?

. . . . LIKE NO OTHER TIRE MADE

ONLY GOODYEAR GIVES YOU SUCH TRACTION

THEY grip . . . they hold . . . those famous diamond blocks of the Goodyear All-Weather tread give you far more traction—12% more than any other tire. For dependable, economical hauling your trucks need this extra power to pull, this extra non-skid protection that only Goodyears give them.

—And there are other reasons, too, why Goodyears are the standard of comparison for all truck tires.

They are built with these exclusive Goodyear features:

Patented pre-shrunk Supertwist Cord construction—new, improved Goodyear bead construction—new, flat, high-shoulder tread shape—special chemically-toughened body rubber—Pima cotton, longest cotton fibre grown.

Because of these basic superiorities Goodyear Truck Tires outperform all others. It's no wonder more tons are hauled on Goodyear Truck Tires than on any other kind.

On your trucks—on all trucks—they're MONEY SAVERS.

NRA CODE

GOODYEAR

TRUCK TIRES — *Money savers*

Ears to the Ground

Giving You Information Some of Which is Inside, Some Advance, and Some Just Unusual

A New Standard in Diesels?

One of the old-line diesel engine manufacturers, not previously identified closely with the highway transportation field, is about to jump into the truck market with both feet and with an engine which, if it lives up to experimental tests, should set new standards in diesel design.

A Triple Play

We can't say much about it yet, but we might inkle that nothing quite like it has ever been built before in production. At one fell swoop it promises to lick three major diesel problems: size, weight and roughness.

Covers 90% of Trucks

Next month we hope to be able to tell you more. We're itching to do it. Meanwhile, just this much more to whet your curiosity: the engine weighs less per horsepower than comparable gasoline engines; and, according to a quick check of CCJ's specifications table the size and power of the engine first developed should cover better than 90 per cent of all trucks.

Get the Inside Dope

If you want to get in your request for advance details of this diesel engine just check the letter A on the postcard on page 34.

Metal Roofs for Trucks

Several of the most important passenger-car makers are going to all-metal roof structures in next year's models. It appears probable that this development will find its way into the commercial field with panel bodies, etc. Apparently the "drumming" problem has been pretty well licked.

Another "Pancake"

Don't be surprised if another horizontal-opposed cylinder engine (pancake-type to us) makes its appearance in the heavy-duty field in a camel-back model. It's being worked up now and the designer's familiarity with this type of engine will speed its completion. Guessing roughly, this news is just about six months in advance of the public announcement.

Heads Up on Heads

The experiments with copper-plated, cast-iron, high compression heads which we mentioned last month, came to a head sooner than even this alert department anticipated. Head matters came to a head this month when Federal-Mogul announced its entry into the cylinder-head field with an entirely new type of copper-alloy head. Experimental tests were copped by copper.

Two Engine Makers Order

Comparing it with cast-iron and aluminum, Federal-Mogul claims a decided increase in power while reducing gasoline consumption. Two engine makers already have ordered the new copper-alloy heads into production. Get this straight now, the heads are copper-alloy and not copper-plated.

Problems Pique Producer

One of the car companies which during the past year has been selling trucks through its passenger car dealers hasn't found the road smooth traveling, we hear. There seem to have been two major problems. Selection and design of the product was number 1 problem, but the chief trouble was lack of proper preparation and training of dealers along truck-selling lines. It isn't particularly surprising to CCJ, and we rather expect this company will make some major changes in its truck merchandising methods for the coming year.

FREE!

Use the Convenient Postcard on Page 34

Note the reference letters below and simply check the corresponding letters on the postcard.

A—Send me advance details of the new Diesel mentioned on this page.

B—Send me a sample self-closing Monkey Link for making tire chain repairs.

C—Send me free booklet on Care and Lubrication of Fuller Transmissions and Clutches.

D—Send me the new 96-page Federal-Mogul Parts Catalog.

Special Offers!

For additional Special Offers see the Free Money-Maker insert on page 34

That Sanding Device

Now it can be told that the sanding device for trucks mentioned last month is made by the Nichols-Lintern Co., 7960 Lorain Ave., Cleveland, Ohio. If you write for details direct, you'll get snappy action if you mention this department. No foolin'.

Diesel Coming Down

The sales department of a well-known engine company has written the editor expressing confidence that its volume of diesel business will very soon make the price of the diesel more attractive because of the savings resulting from increased production. That ought to be welcome news to the 500-odd readers who swamped us with requests for diesel dope during the last two months.

A Small Diesel for 1935

Another engine manufacturer, who is now making a diesel, is planning to meet the truck field's crying need for a small diesel. This maker has procured certain foreign patent rights and is expected to have a 250 cu. in. model available by the first of the year.

When In Drought

Some manufacturers of trucks have been bewildered by a sudden and unusual increase in complaints of excessive cylinder wear. Check-ups showed that the complaints came from operators in the sections which were hard hit by last summer's drought. Dusty conditions put a lot of air cleaners to a severe test and the evidence is that the cleaners didn't come clean. So, when in drought, let this be a lesson to you.

E. P. Motor Oil

A prominent oil company, according to one of this department's field spies, has ironed the wrinkles out of extreme pressure motor oil and will begin to market this product in the near future.

● *Here is a Marmon-Herrington Model A20-4 (four wheels driving) engaged in the difficult task of building a section of new highway across Lost Prairie in the timbered section of Mason County, Washington.*

A Substantial Increase Every Year for Three Years...and NOW Marmon-Herrington Sales Show

A 200% GAIN FOR 1934

A RECORD THAT IS *Vitally Important* TO ALL TRUCK BUYERS . . .

THE remarkable growth and success of Marmon-Herrington means two big things to every truck owner, buyer and operator —

FIRST, Marmon-Herrington is firmly established in a position of leadership in the all-wheel-drive industry.

SECOND, the increasing nation-wide and world-wide acceptance of the Marmon-Herrington line is a definite tribute to the advanced design, performance and dependability of Marmon-Herrington all-wheel-drive trucks and truck-tractors.

Every year for the past three years, more and more truck owners have experienced and profited by the advantages of Marmon-Herrington vehicles in operation both on and off the highway. In practically every field of motorized transportation, the exclusive Marmon-Herrington all-wheel-drive features have given more ton-miles at less cost . . . greater tire life . . . greater safety . . . a far wider range of performance and utility.

Back of Marmon-Herrington success is an institution organized on a permanent and financially strong basis . . . an institution with ample and modern manufacturing facilities . . . a wealth of advanced engineering talent. Everything about the company and its policies is as modern as Marmon-Herrington trucks themselves.

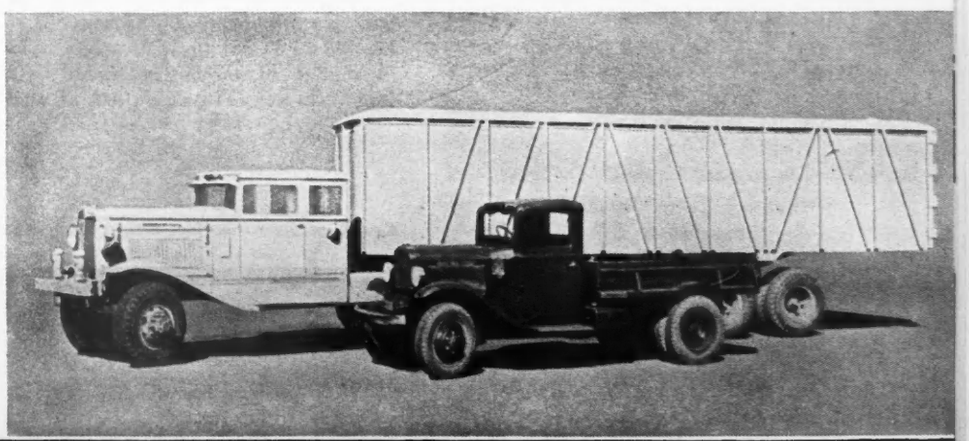
If you are interested in giving your truck dollar a new standard of value, write for the complete Marmon-Herrington story. There is a new Marmon-Herrington line with five series and 28 models, beginning at 1½ tons. Every model is an all-wheel-drive with features that are obtainable on no other line on the market.

—Marmon-Herrington also has excellent territories open for capable distributors and dealers.

A FEW WORDS TO FLEET OWNERS

Marmon-Herrington all-wheel-drive trucks are ideally suited for fleet operation where fast and undelayed performance, dependability and economy are invaluable assets.

Equipped with semi-trailers, Marmon-Herrington units have established many outstanding payload records. Fleet owners will find new Marmon-Herrington "A" series trucks adaptable to practically every need and requirement. In this series there are five models ranging from 1½ to 4½ tons, each driving through the front wheels as well as the rear. Prices are unusually reasonable for this type of transportation.



MARMON-HERRINGTON CO., INC.

All-Wheel-Drive Motor Trucks...Indianapolis, Indiana

5,000,000 lbs. of freight is checked in and out of this N... Haven, Co...

260 Million Pounds of ...

.... So An Executive Vice-President and His Shop Superintendent Team-Up On Preventive Maintenance That Keeps Their Trucks Rolling

By HENRY JENNINGS

Mickey Adley and Morgan (circle) his shop superintendent

A BIG truck labored over the rolling roads, that cross the hilly Connecticut countryside, into New Haven from the North. The driver was having his troubles and was anxiously awaiting a chance to tell the shop all about it in very expressive language. He had 9½ tons aboard and was operating on the New York run with a schedule that did not allow for his present slow speed. It was not a lack of power that was holding him back, it was a broken rear spring.

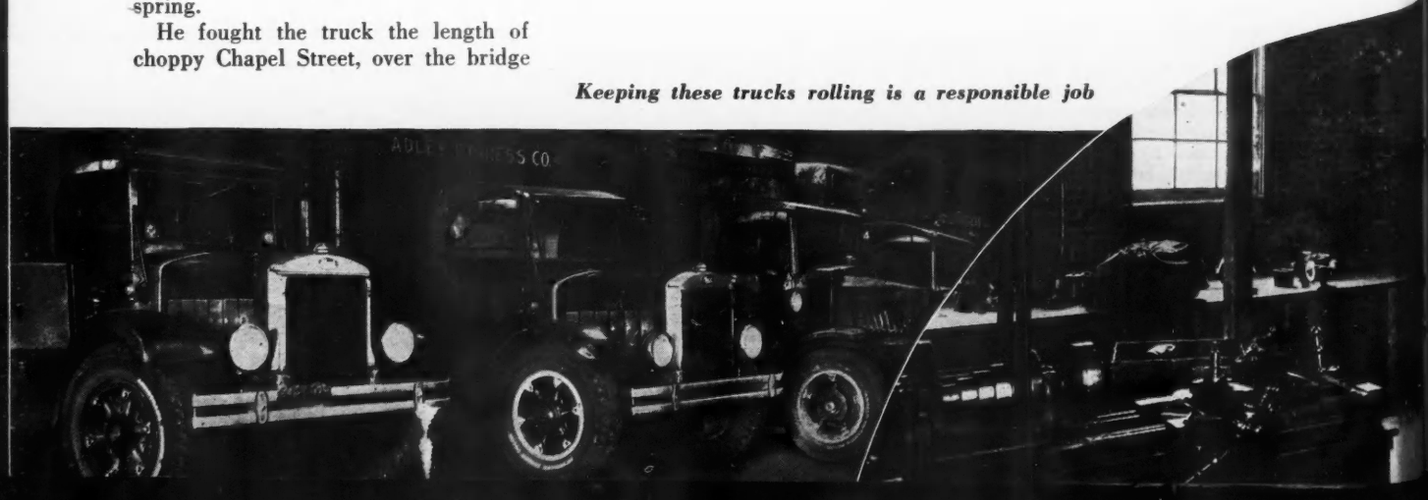
He fought the truck the length of choppy Chapel Street, over the bridge and with a feeling of relief turned into the central shop of the Adley Express Co. E. P. Morgan who runs the shop happened to be standing in the doorway and saw the truck coming. None of the driver's expressive language was required to tell him what was wrong with the truck.

A calm inspection of the truck showed him that the damage required nothing more than a new rear spring so he waved the driver on into the shop. Two names were called. Two men started for the heavy duty jacks. An air operated socket wrench was brought into play and in 25 minutes the truck started through the door for New York with the 9½ tons still aboard. It is not recorded that the driver was smiling but if he was not he should have been. He had been very kindly treated by a well trained, efficient shop crew.

In changing the spring the hardest physical labor that the two mechanics had been called upon to perform was to move the jacks into position and to handle the spring. The spring was actually raised into position by a jack and the brute work of removing and tightening spring U bolt nuts had been taken care of with the air operated wrench.

The fact that the truck was under way in 25 minutes with the new spring installed was not a coincidence. It was not even unusual for the Adley shop. There was no flag waving or cheering. The shop had merely taken a non-routine job in its stride. Mickey Adley, executive vice-president of the Adley Express Co. believes he has to have this kind of service and demands

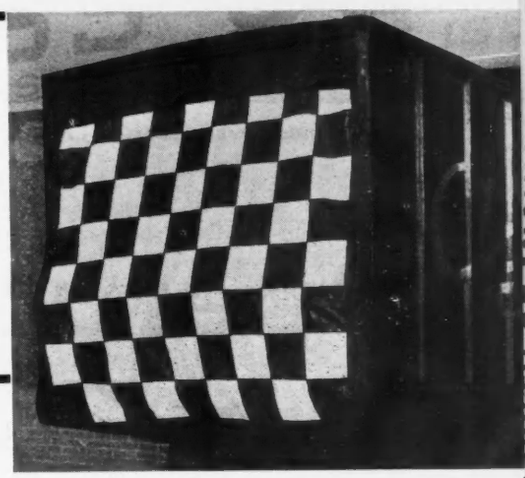
Keeping these trucks rolling is a responsible job



Haven, Conn., terminal each week . . . the schedule must go on

ds of Freight Can't Wait

THE Adley Express Co., of New Haven, operates 90 trucks that cover 3,900,000 miles and carry 260,000,000 lb. of freight yearly. The responsibility of this operation might be considered tremendous. It is. But the responsibility of maintenance is a comparatively routine matter now that the maintenance shop has its equipment standardized. Repairs are made skillfully and without undue loss of time. Stocks of standard parts facilitate replacement repairs. Preventive methods have enabled them to operate a scheduled shop service and hold down maintenance costs. How they do it is explained in this story.



Above—A tarpaulin serves as a safety signal

it. Mr. Morgan has worked for a number of years with the help of a faithful shop personnel to arrive at this point.

If at this point the reader pauses to reflect that Mr. Adley's demands on his shop are a bit strenuous and that we are being a bit flappant in referring to the vice-president of so ambitious an enterprise by a nickname, let us defend ourselves and Mickey Adley right here. When we first asked for Mr. Adley the telephone operator and information clerk replied, "Mickey is out of town and will not return until this evening."

He is Mickey to the boys on the freight platforms and to the mechanics in the shop as well as to the officials of the company so we assume he is Mickey to the world at large. We did not question him on this point. Certainly the free and easy use of the nickname has not lowered respect and admiration for him among his associates.

WHEN he makes demands on the shop he is merely passing the demands of successful operation on to the various departments. There are 90 trucks to keep rolling. Rolling to the extent

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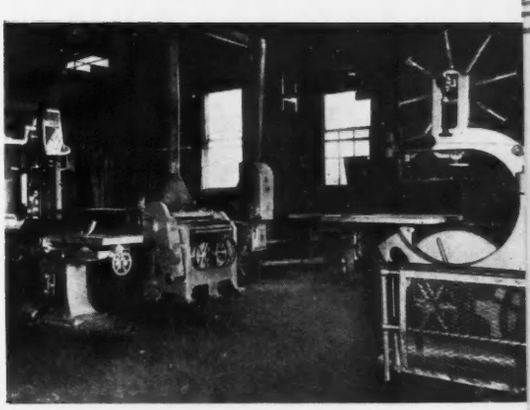


Truck bodies are Adley made in this shop

A well-equipped machine shop facilitates repairs

Convention scene and (right) Federal Coordinator Eastman speaking to the industry and at the mike

Operators Vote to Give Code a Chance

Endorse Self-Regulation at Trucking Industry's First National Convention But Keep Door Open on Federal Control

THE trucking industry at its first annual convention in Chicago late in October decided to go along with self-regulation under the code and thus applied the brakes to federal regulation sentiment within its ranks.

But the brakes aren't locked and sentiment may start rolling with even greater rapidity than before. It all depends on how the code works out—and how the code works out depends upon the members of the industry.

The convention's decision was contained in a resolution that, in many respects, is a gem. Framed by the policy committee of the American Trucking Associations, Inc., it read as follows:

"It shall be the policy of the American Trucking Associations, Inc., to cooperate with the Federal Coordinator of Transportation and the Administration in the development of an economically sound national transportation policy; at the same time, preserving and continuing for the industry the benefit of self-regulation under the Code of Fair Competition for the Trucking Industry, and further, to preserve for the public the economies of motor transportation."

To this was attached the important provision that the policy committee of 39 members be kept active and convened for advice and counsel should events make it advisable to change the policy as outlined above.

UPON reflection, even those operators who were rabidly in favor of the convention's declaring itself for federal regulation must see the wisdom of the course taken. It is wise for several reasons: In supporting the code, it does not close the industry's eyes to federal regulation. It takes a practical view of the situation. It realizes that many months must elapse before anything can be done about federal regulation. In the meantime the experiment to stabilize conditions in the trucking industry can be continued by means of the code. It will develop important data that can be used in getting the right sort of federal legislation when that issue becomes inevitable. It will preserve the industry's united front—and that's mighty important now, and will be more important in the future.

On the other hand, if, at this time,

By GEORGE T. HOOK

Editor, Commercial Car Journal

AMONG the resolutions passed by the ATA convention was one recommending that not-for-hire operators be continued as members of the association, and another one covering the payment of dues to the national association. According to the latter each association is assessed $100 and, in addition, an amount equivalent to (a) 25 cents per truck operated by each for-hire member but not to exceed $100 per member per year, and (b) 10 cents per truck operated by each not-for-hire member, but not to exceed $25 per member per year.

federal regulation were favored at the expense of self-regulation under the code the industry would be thrown into a mess. The code would still have legal force but, lacking the industry's cooperation, it would be just a foul ball. Foul is the right word because with disrespect for the code would come competitive dirty work. Then with the blue eagle's wings broken instability would return and send the industry into a tailspin. And it wouldn't do the industry any good to be found in this condition when Will Rogers' pet jokes get together in the Capitol to consider federal regulatory legislation.

IN supporting the code at the present time and expressing a willingness to cooperate with the Administration in the development of an economically sound national transportation system, the industry did as much as even Federal Coordinator Eastman could have expected of it. Mr. Eastman, in a convention speech that was broadcast over a national network, declared emphatically:

"I have no complaint to make of the code. It has accomplished some good results. It is much better than no regulation, and I certainly hope that you will keep on with it until something else takes its place."

President Ted V. Rodgers had the same idea in his keynote speech: "I believe we should keep the code until something better is ready to function. I believe this convention should take action that will permit us to work for and fight for the best possible features in a federal regulatory law. I do not believe that we should vote to foresake the code in favor of a commitment to another form of federal regulation at this stage of our development."

In view of both these statements it must be plain that neither Mr. Eastman nor Mr. Rodgers will look upon

National Code Authority for the Trucking Industry

Front row, left to right—W. L. Stodghill (Ky.), Frank C. Schmidt (O.), Charles P. Clark, N.R.A. Deputy Administrator; Ted V. Rodgers (Pa.), chairman; J. H. Alphin (Ark.), H. D. Horton (N.C.), C. S. Reynolds (Wash.). Back row, left to right—Frank Flanagan (Mass.), Fred O. Nelson (N.Y.), Frank Shufflebarger (N.M.), F. R. Petty (Kan.), James E. Murphy (Minn.), Roy B. Thompson (Cal.), vice-chairman; Edward S. Brashears, general counsel; R. K. Carter (Va.), treasurer; Edward F. Loomis, secretary

the convention's action as a nose-thumbing gesture at federal regulation. The effect of the resolution is to instruct officials of the American Trucking Associations to be on the alert with regard to federal regulation and to proceed along lines which will be to the best interests of the trucking industry. While the resolution does not put the industry on record in favor of federal regulation, neither does it voice the industry's objection to federal regulation. Specific declarations on this point will be made at the proper time.

Meanwhile the code mill will be grinding out experience and facts. And on how well the mill grinds and what it turns out will depend whether the industry should support federal regulation wholeheartedly as a preferable substitute, or whether it should take a defensive position and oppose it. Even violent objectors to the code must admit that what the code grinds out can't all be boloney. There surely will be succulent scraps that will be relished both by legislators and by the industry. Thrown into the Congressional den these scraps may slake a lot of bloodthirsty appetites.

Certainly the code will have to grind and grind fast between now and the next session of Congress if it is to justify the high hopes of its supporters. If it doesn't the cause of federal regulation will be promoted. The reaction that may be expected is indicated by the sentiment expressed by an operator who is a loyal supporter of the code and who is a member of the National Code Authority. In a group discussion in which the writer took part this operator said candidly, loudly and with clenched fist: "I'm for the code but if it isn't working satisfactorily by the time Congress meets I'll write a federal bill of my own."

AND just as certainly the convention's decision has not changed conditions on the Washington front. Mr. Eastman is going ahead with his transportation coordination plans and they include, beyond any doubt, the introduction in Congress of a regulatory bill covering interstate operations of for-hire trucking. Along this line he aired some previously-expressed ideas and some new ideas before the Chicago convention and over the air. Once again he voted for regulation of all forms of transportation by a single commission.

"I see no way of getting consistent, impartial and coordinated regulation directed to a common end," he said, "unless a single federal agency has responsibility for the entire transportation system. Separate commissions are bound to work at cross purposes and the transportation muddle will still be with us. The single agency would naturally be the Interstate Commerce Commission."

Then he came to the question which, as he understandingly put it, "seems to be worrying you all." This dealt with the industry's fear that it would not get a square deal because the Commission was "railroad-minded". Defending the Commission, he said:

"Personally I know it is made up of intelligent men sincerely trying to do their duty and without regard for politics or other like influences. It may be that one reason why you think it is 'railroad-minded' is because it has not given you the protection to which you believe that you are entitled against unfair railroad rate-cutting. But let me suggest, what I think must be obvious, that a Commission which has no control over truck rate-cutting is likely to be somewhat lenient with railroad retaliation."

ADMITTING that truck transportation is a far different thing from rail transportation, that regulation cannot be forced into the railroad mold, and that many of the experts of the Commission have naturally been recruited from railroad sources, he declared "that condition would certainly be changed if the Commission is given jurisdiction over motor and water carriers, because it would feel the need of experts with other training."

His determination to see that the trucking industry gets a fair deal was particularly apparent when he took up the matter of changing the I.C.C. to meet the objections of the industry. One suggestion, which he made to indicate the possibilities, was "to enlarge the Commission somewhat, appointing certain new members; have a special division to specialize on each important form of transportation; have a chairman for the entire Commission; and let him and the chairmen of the special divisions act as a Control Board to govern matters of general policy."

He made it clear that he was not in any way committed to the details of the regulatory bill which he submitted to the President and Congress last year. He said he would welcome further suggestions and that his mind was open on all matters of detail.

But on one detail he was nevertheless positive. That was the detail of rate regulation. "It may be convenient in many instances," he declared, "to state motor transport rates in terms of railroad rates, and the truck operators have often done that of their own volition. But when any fundamental question arises as to the bottom level of the rates, there can be no escape from the conclusion that the fair cost of motor transportation is of paramount importance."

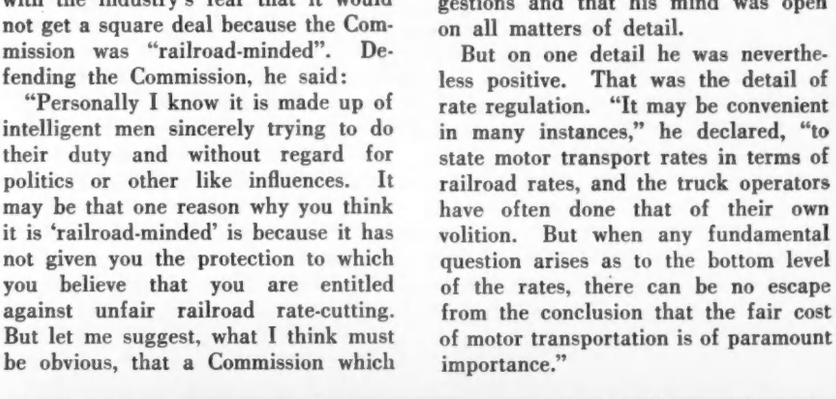
ATA HONORS ITS LEADER

TED V. RODGERS, of Scranton, Pa., was unanimously reelected president of the American Trucking Associations, Inc., at the Chicago convention. The ovation accorded him was a sincere tribute to his courageous and inspiring leadership.

It came from admiring hearts so intensely moved that the tribute was touching. There were eyes that clouded with unshed tears and throats that gulped those sentimental lumps that men helplessly succumb to when greatly moved.

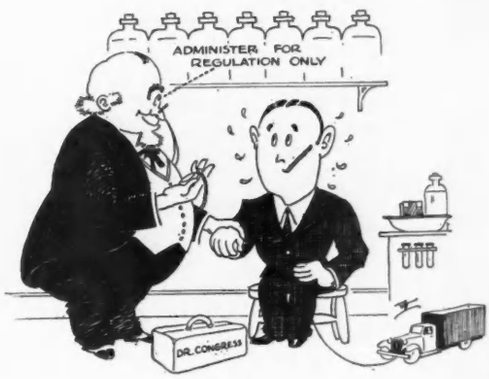
Vice-presidents were chosen in the following order: John W. Blood (Kan.), Percy F. Arnold (R. I.), C. G. Moore (Ill.), S. J. Drummond (Ala.), John F. Winchester (N. J.), B. F. Morris (Cal.), L. A. Raulerson (Fla.), J. H. Rowan (Colo.), F. G. Dorsey (Tex.), J. W. Crowson (Ore.), H. E. Boysen (Pa.), and E. A. Ward (N. D.).

Robert K. Carter (Va.), treasurer, and Walter W. Belson (Wis.), secretary.



This tractor semi-trailer unit trekked over the roads to New York for a record trip to the Byrd Antarctic Expedition ship on the eve of its sailing. It was loaded with foodstuffs so that the men destined to walk on the bottom of the world would not starve even though they might freeze.

Who Will Administer Federal Regulation?



It May Be One of These Seven Plans Proposed for Administering Federal Regulation of the Trucking Industry

ALTHOUGH the Trucking Industry at its first annual convention showed its preference for self-regulation under the NRA Code, the shadow of Federal regulation still hovers over interstate operators. It will be an issue in the next Congress.

This being so, it is important to know what plans have been proposed for administering Federal regulation should it be enacted. Quite a number of plans, including a Secretary of Transportation in the Cabinet and an enlarged Interstate Commerce Commission have been proposed. This article outlines each of the seven plans that have been proposed with the pro and con arguments applying to each.—Ed.

WHAT are the principal plans for administering Federal regulation that have been proposed and which are being considered seriously? It is impossible in the brief space available here to do more than outline the plans suggested and refer briefly to some of the important arguments for and against the plans.

Regulation by an Enlarged Interstate Commerce Commission

One of the most important suggestions is that the Interstate Commerce Commission, consisting at present of 11 commissioners and a staff of 1620 employees divided among a number of subordinate departments, bureaus and boards at Washington and in the field, be expanded and perhaps reorganized and undertake the regulation of all common carriers for hire, including railroads, motor carriers, steamships and water lines, express companies, air transport companies, car lines and pipe lines, acting both as a quasi-judicial body to decide complaints and as a quasi-legislative body to administer, control, supervise and advise the carriers subject to its jurisdiction.

Those who favor this plan of organization urge that the coordination of transportation requires that all carriers be regulated by one central body rather than by a number of different and perhaps discordant regulatory bodies regulating different forms of transportation. They urge that this plan of regulation would have the advantage of bringing all carriers under the jurisdiction of an administrative body composed of able and fair-minded transportation experts which has over a period of 47 years established an enviable reputation and an established position in administrative law. New commissions would have a relatively long period in which to gain experience, develop prestige, and win its way to a position of recognition in litigation before the courts.

Those who dislike this plan of regulation do so because they fear that the Commission is not well-fitted to regulate all forms of transportation because for many years its attention was directed toward the regulation of railroads and rail-accessorial enterprises, so that the other forms of transportation would not receive the recognition properly due them.

The Secretary of Transportation Plan

ANOTHER plan of regulation proposes the organization of a Department of Transportation under the direction of a Secretary of Transportation to be established as a member of the cabinet. It is proposed under this plan that all of the present independent transportation regulatory bodies be abolished and all of their work as well as the task of regulating other forms of transportation not now regulated be placed under this proposed Secretary and the Department of Transportation.

This plan, it is urged, would tend to give the transportation industry the advantages and dignity of representation in the President's Cabinet, a privilege enjoyed by commerce, agriculture, finance and labor, and a recognition well merited by transportation as one of the most important industries of the country. It would achieve also the benefits of a high degree of concentration of regulatory and promotive authority over transportation.

Those who object to this plan point out that it would tend to inject partisan politics into transportation regulation and development, that it would place control in the hands of a single

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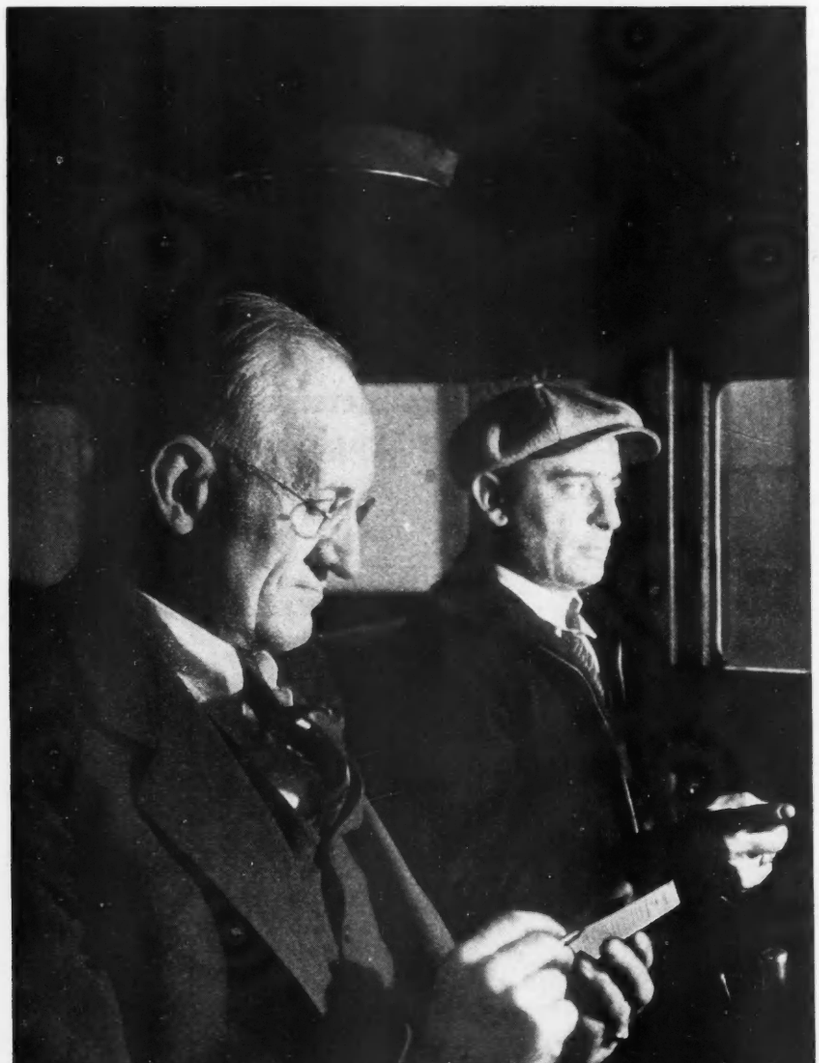


Clyde Adams sits beside the driver with test card in hand checking the man's driving ability

IT is my firm belief that there is almost no limit to the progress that can be made in the methods used in maintaining trucks. For that reason I think this subject has held the center of the fleet stage so long that we are in danger of neglecting another equally important problem. While at the moment I am unwilling to do much talking about the shops under my control I am willing at any time to enter into a discussion of driver selection and management because it is so closely related to the solution of a problem closest to my heart—safety.

To analyze the methods we use here at the Rubel Corp., let us take as an example the drivers of the 17 tractor-trailer trucks which do the over-the-road work because these men must have a greater degree of skill to operate this type of equipment. They are away from office control longer than the others, they carry larger loads, the equipment they are responsible for is more valuable and they are paid more money. In short they have reached the peak of the truck driver's art.

What does a driver do to get one of these jobs at the Rubel Corp.? First, he applies to me in person and if his conversation and appearance do not class him as obviously unfit he is asked

How I Road-Test Drivers

By CLYDE ADAMS
Safety Director
Rubel Corp., Brooklyn, N. Y.

"The men who drive these giants have to be good"

NAME Kappi, C. OCCUPATION Chauffeur BRANCH E.B.

EMPLOYEES ACCIDENT RECORD

PROPERTY DAMAGE		PUBLIC LIABILITY		COMPENSATION		
DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	LOST TIME	NATURE
2/24/34	SKID ON ICE INTO TELEPHONE POLE					
6/15/34	LEFT TURN HIT CAR WITH	REAR	WHEEL			

BRANCH BROOKLYN

DRIVERS TEST CARD

RUBEL CORPORATION AND SUBSIDIARIES

	1ST TEST	2ND TEST
1. Imperfect Vision		
2. Poor Shifting	✓	
3. Repeated Stallings	✓	
4. Unfamiliar with Traffic Rules		
5. Swings Wide on Turns		
6. Swings Short on Turns		
7. Speed on Corners		
8. Speed at Intersections		
9. Rolling Back on Hill	✓	
10. Poor Control over Steering Gear		
11. Delayed Braking		
12. Accident		
13. Near Accident		
14. Reckless Driving		
15. Reacts too Slow on Shifts and Braking to be Safe		
16. Failed to Signal on Turning		
17. Assisted or Coached		
18. Poor Judgement in Traffic		
19. Nervous		
20. Refused to Follow Instructions		
1st. Examiner		
2nd. Examiner		
DRIVER'S NAME CASSELLANA. P		
LICENSE No.		

REMARKS

Does not know how to shift.

Above—The driver's accident record is mute evidence of his ability to toe the safety-mark. Right —This is the way a driver's test card may look after Mr. Adams steps down from the cab

Before I Hire

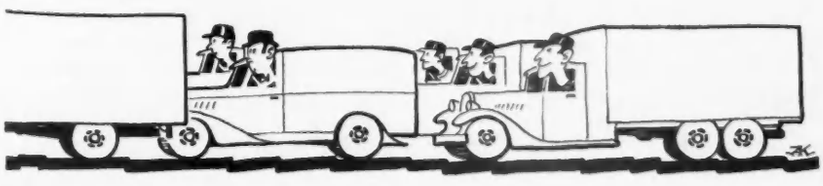
A Fleet Operator Who Believes That Driver Selection is the First Step In Reducing Accidents Tips His Mitt

SAFETY BEGINS WITH DRIVER SELECTION

CLYDE ADAMS is responsible for the operation of 420 pieces of automotive equipment belonging to the Rubel Corp., Brooklyn, N. Y., brewers of Ebling's Extra beer and producers of ice for home consumption.

On the day he took over the fleet Mr. Adams began a safety campaign which, he says, is to last as long as he is responsible for the fleet.

Safety, in the opinion of Mr. Adams, begins with driver selection and management, and in this article he tells how he picks drivers and what he expects of them.



to fill out the customary application which gives detailed data about himself. If we do not find anything from a study of this information that puts him in the discard, I next invite him to drive one of the tractor-trailer trucks. I climb up on the seat beside him because I think this personal contact is important. If this applicant is successful he is going to be trusted with thousands of dollars worth of equipment, valuable cargo and be responsible for a highway transportation unit that is dangerous if inexpertly handled.

THE test is conducted around streets of Brooklyn which present a variety of traffic conditions. A driver's test card is used to check the driver's performance. At the end of the trial run the driver is requested to back the truck into its accustomed stall in the garage. After the driver starts to back he is not permitted one forward motion. The tractor trailer must go into place without any see-sawing if the driver is to make the grade.

If the applicant passes me and survives the obstacles I have thrown in his path, a few of the old experienced drivers get a chance to look him over. In order to make it clear just how this is done it is first necessary to give a little detail on our highway operation.

The tractor-trailer equipment is all used on long runs. All trips average about 30 hours from the time the truck leaves the platform until it gets back. The destinations are Boston, Schenec-

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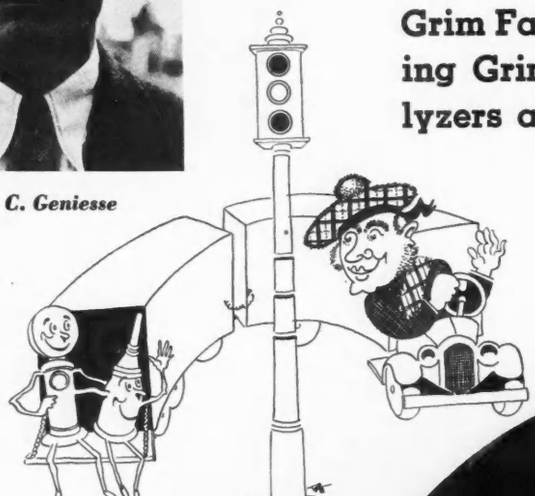
Dr. J. C. Geniesse

More Miles (and S

Grim Faces of Fleetmen Turn to Approving Grins Before Proof That Gas Analyzers and Winter Oils Show Savings



The oil pressure gage is the biggest liar on the automotive dash board. It tells you all the things you do not want to know.

Design and condition of the engine has more to do with oil consumption than does either the brand or specification of the oil.

Temperature makes an important difference in fuel consumption.

Speed of operation makes an important difference in both fuel and oil consumption.

Very low oil consumption does not always go hand in hand with operating economy.

Reclaimed oil is okay if the equipment is adequate and the operator is competent.

Fuel economy is a compromise with maximum performance.

Is the oil pressure gage the biggest liar on the dash board?

THE above conclusions could be drawn from a paper read before an SAE meeting of Philadelphia fleet operators by Dr. J. C. Geniesse of the Atlantic Refining Co., and from the discussion that followed it.

In apportioning the responsibility for fuel economy Dr. Geniesse tried to make it clear that the fleet operator himself was an important figure. This reference was to the operator's ability to keep his fleet in good mechanical condition with particular emphasis on the engine tuning and carburetor adjustment. In this connection Dr. Geniesse personally went on record as approving those gas analyzers which could be used to test the exhaust gas when the engine was operating under load and road conditions.

The slide used with this part of the paper showed that the thermal efficiency increases as the air fuel ratio is increased until a maximum is reached at about 16.1 lb. beyond which it falls off rapidly. The torque decreases rapidly from a maximum at about 12.5:1. The economy curve falls between these two reaching a maximum at about 14:1, the precise ratio depending upon the number of hills and the type of equipment. With all of these factors and variables it was pointed out

Smiles) from Gas and Oil

Condition of the motor has more to do with oil consumption than has the brand of oil used

that the only way to get an accurate solution was to use the gas analyzer.

This brought forth quite some discussion which ended when some convincing tests were cited. One came from a Philadelphia fleet operator who, after having all of his engines adjusted according to the findings of an analyzer found that he saved about 20 per cent on previous fuel consumption over the period of a year. Another bit of information volunteered by a member of the audience during the discussion was the tests made by an engineering school in Brooklyn. In 263 vehicles tested with an analyzer and accordingly tuned and thereafter checked, an average fuel saving of 18 per cent resulted.

Digging through the records of a transportation company brought to light the fact that it required 18 per cent more gasoline to cover the same schedule with the same vehicles when the mean monthly temperature was 22 deg., than it did during summer temperatures. Two fleet operators said that this checked almost identically with the performance of their fleets. The increase is attributed to poorer distribution, more choking and longer idling.

A peculiar fact noted by Dr. Geniesse is that there is no definite relationship between the heat content of gasoline and the mileage it will deliver. Comparisons with aviation gasolines, which have a lower heat content, with motor gasolines generally show the same mileage. The lower heat content of the lighter gasoline is counterbalanced by the fact that it vaporizes quicker, thus improving distribution.

To determine the correct viscosity for lubricating oil four characteristics must be considered. They are starting ease, wear, consumption and fuel loss. In discussing starting ease Dr. Geniesse recommended the use of 10 W and 20 W oils in cold weather. He had a chart which showed the minimum temperature at which each viscosity of oil would create only a permissible starting load.

Tied right in with starting ease is the matter of engine wear. It is pretty well accepted that a large portion of cylinder wear occurs during the warming up period. The more viscous oils it was pointed out require a much longer period of time to reach the

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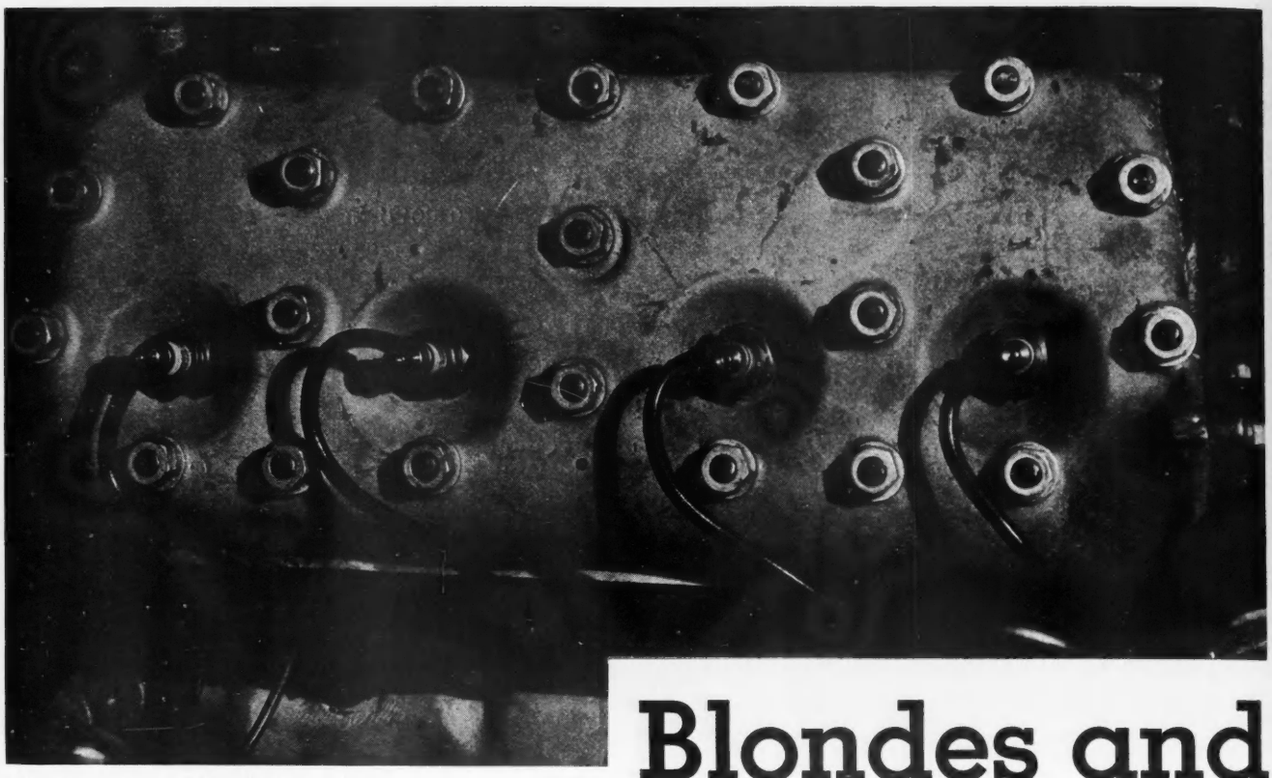


Aluminum head (Blondy to you)

Blondes and Winter

Br - r - r - r - r - r !

WHEN winter winds whistle trucks should be prepared to brave the blasts. Preparation doesn't begin and end with the cooling system. There are other parts that are just as liable to catch cold-weather ills. In buttoning up their winter overcoats fleets should see to all of the following buttons:

Drain and flush radiator. Remove all rust. Fill with anti-freeze mixture; repack the water pump; adjust fan belt; lubricate cooling system; clean all connections on lighting system; check battery's specific gravity; reset generator charging rate; replace broken skid chain cross-links; equip trucks with windshield defrosters for safety's sake.

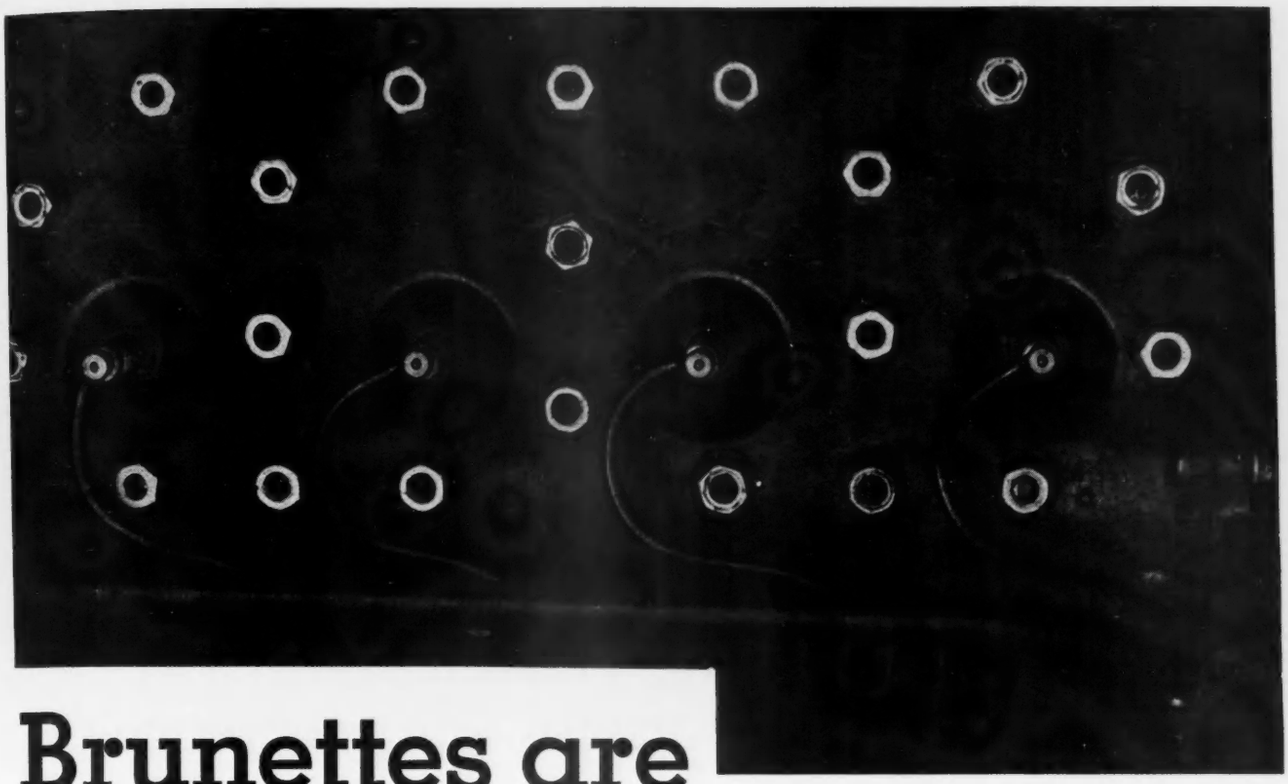
IN cold weather the chemical composition of the human body sometimes becomes unbalanced and illness results. We have what is known as a cold. The symptoms are chills, and heat in the head, known as fever.

The same is true of trucks in winter weather. They are sure to catch cold if the chemical composition of the cooling system is not right. The symptoms are the same. The radiator gets chilly; so chilly that it freezes tight. The head gets feverish; so feverish that it is necessary to stop the engine. This state of affairs is technically known as a freeze-up.

In both the case of the human body and the truck preventive measures are indicated in order to avoid troublesome breakdowns. Individuals can take care of themselves, but the truck can't. The fleet operator has got to be the doctor.

FLEET Operator, M.D., has more to consider now than in past years. Unlike the human head, which hasn't undergone any change in recent years, the truck head has undergone changes. Where once there were all brunettes, there are now lots of blondes. That is, there has been a trend toward the use of aluminum alloy heads. These blondes must be understood and must receive more careful attention if damage is to be prevented.

In the first place the aluminum head expands more when overheated than does the cast-iron head. Since it is bolted down tight there is only one place for this expansion to go. It squeezes the gasket down which sooner or later causes a leak. This squeezing down process is not preceded, at least in some cases, by the pinging noise that drivers have learned to associate with overheating, and which serves as a warning.



Cast iron (Brunette) head

Brunettes are Worries

We're Speaking of Engine Heads and How Not to Flirt With Trouble When Those Cold Chills Come

An aluminum head, it must be added, loses tensile strength very rapidly in cases of serious overheating with the result that it cracks. This complicates matters by adding a fractured skull to the fever.

ALL of this is not intended as an indictment of blondes. It is merely intended as a warning that the penalty for neglected cooling systems is more costly when the engines are equipped with aluminum heads. It is certain that cast-iron heads do not have all the features of aluminum heads and it is also a fact that the aluminum heads will not stand abuse as well as the more rugged cast iron.

What to do about it is an old story, but which will bear repeating. Drain and flush the radiator. Remove the plate on the side of the block and free the interior as far as possible from rust and any foreign substance that may have collected. Repack the water pump and be sure that it is in such mechanical condition that it has a reasonable chance of pumping cooling fluid all winter without a failure, remembering all the time that some of the anti-freeze mixtures have a more penetrating quality than water. They will leak at points where water will not. Packless pumps supply de luxe service at this point.

Now about this question of anti-freeze. The major quality of an anti-freeze is that it prevents freezing when present in the cooling system in sufficient quantity. In addition to the prevention of freezing, anti-freeze must not corrode the metal with which it comes in contact and it must not create a gum. It is the responsibility of the fleet operator to see that sufficient anti-freeze is put in the cooling system and to see that the cooling system is clean when the anti-freeze is added.

A representative of COMMERCIAL CAR JOURNAL was present when some investigations of complaints on one brand of anti-freeze were conducted. About the only thing these investigations developed in this representative's mind was an admiration for the remarkable restraint of the investigators. On the "gumming" complaints there was no indication that the cooling system had been cleaned previous to the installation of the anti-freeze. The cleansing action of the anti-freeze had apparently loosened the accumulated muck and it was carried into the small tubes of the radiator where it lowered the effective radiator surface and caused overheating. The vehicles that "froze up" showed leaks at the water pump packing and at other points, which leads one to believe that the anti-freeze disappeared long before the freezing started.

A FAN belt in correct adjustment will prevent its share of trouble later and radiator coverings will add to ease and economy of operation. Winter lubricants have been the subject of much research in the last few years and one

(TURN TO PAGE 29, PLEASE)

The Low-Down on HIGH COMPRESSION

By Boosting Compression Ratios Fleets Can Take Full Advantage of New Regular Gasolines and Get More Work Out of Old Engines

TRUCK engines manufactured previous to 1933 were not made to get full value from gasolines such as are produced today. This is true because previous to 1933 different brands of gasoline had widely different characteristics and the engine builders were faced with the problem of building engines that would run on any brand of gasoline. The result was engines that would run on any brand of gasoline but would not get full value from the quality brands.

About a year ago all the reputable marketers of gasoline began to standardize on a product within a definite range of specifications. Naturally the engine builders are able to take advantage of this condition in their present production but this change does not help the fleet operator with vintage vehicles unless he is able to make the changes necessary to make his trucks conform to present conditions.

HERE'S THE DOPE

WITH a high compression ratio less fuel per mile is burned and more power is produced. Less fuel means that less heat units go into the engine. More power means that a greater percentage of heat units that do go into the engine are converted into mechanical power. Consequently less heat is lost through moving parts, the cooling system and the exhaust pipe. The result is a cooler running engine with cooler lubricating oil which has a greater lubricating value.

Less fuel consumption, more power, longer engine wear, knock the "H" out of high operating costs.

This article tells you how operators can make the change-over to high compression.

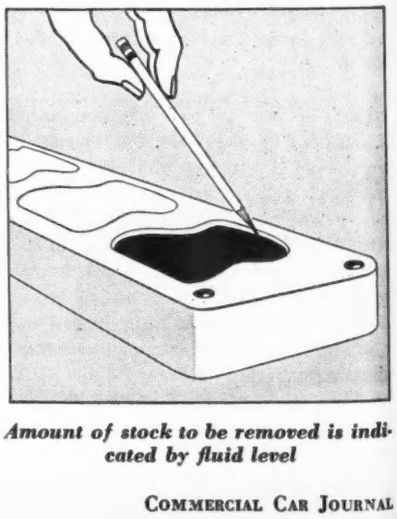
If you want to know what the compression ratio of your engine can be increased to, fill in and mail the questionnaire on page 28.

Spirit levels should be used before measuring head volume

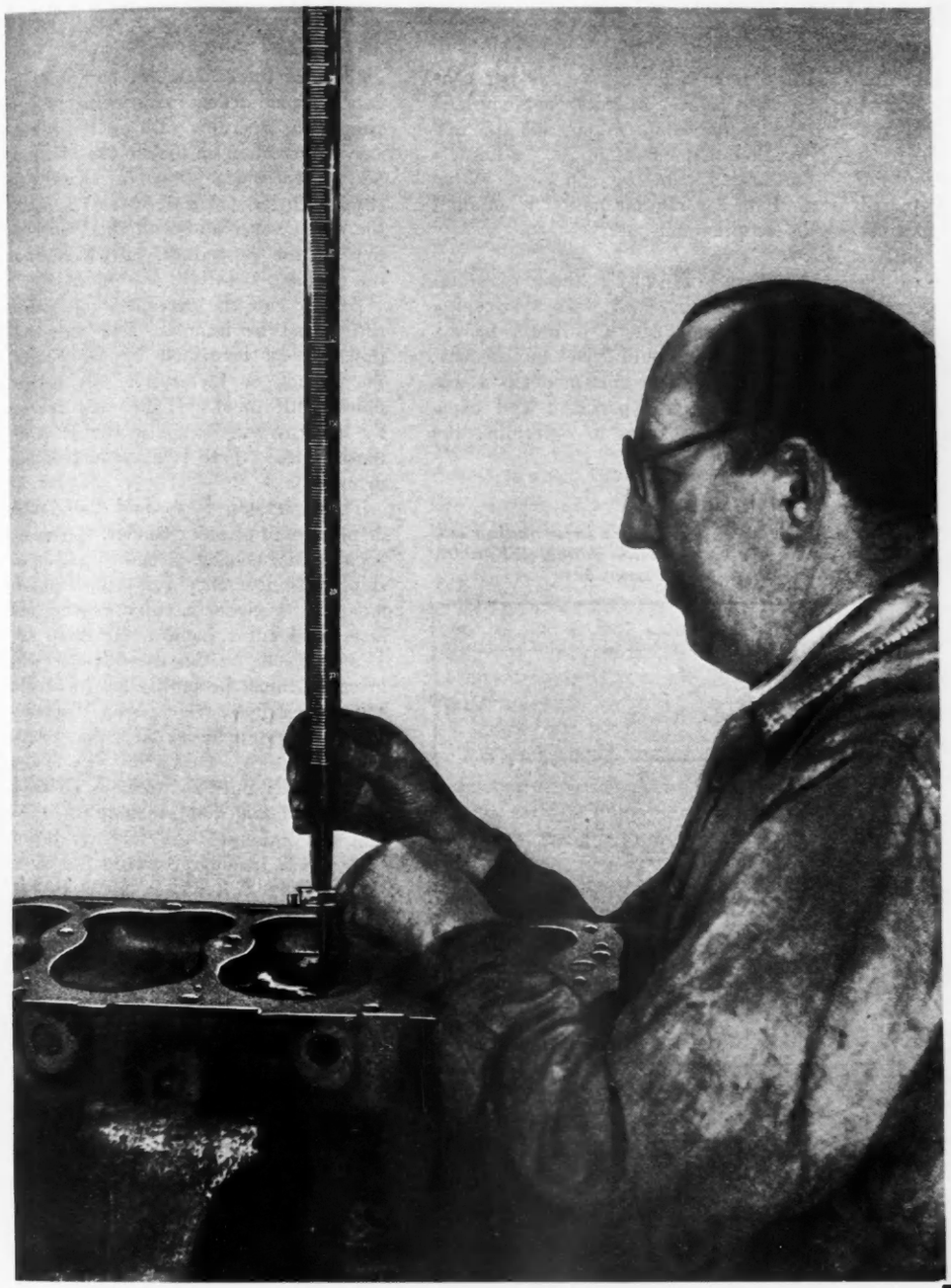
These changes have to do chiefly with increasing the compression ratio. Now, contrary to at least some opinion, increasing the compression ratio does not involve the use of premium gasoline. If the compression ratio is too low to take advantage of present-day fuel it may be stepped up as then it can take advantage of it. By increasing the compression ratio it is possible to get more power from less gasoline. If more power is desirable for reasons of speed or load, or a combination of these two factors, increasing the compression ratio would result in a definite saving.

TO use premium gasoline, an even higher ratio than one efficient for use with regular gasoline would be required. It is probably not always economical, although there is information available to show that premium gasoline costs some fleets less money than did regular gasoline due to the conditions under which the fleets operate.

To accomplish a reduction in fuel cost the premium fuel must give a great enough increase in miles per gallon to lower the number of gallons brought to the point where it will overcome the additional cost per gallon of the fuel. There are any number of cases on record where premium fuel



Amount of stock to be removed is indicated by fluid level



Measure combustion chamber volume accurately—use an ordinary graduate

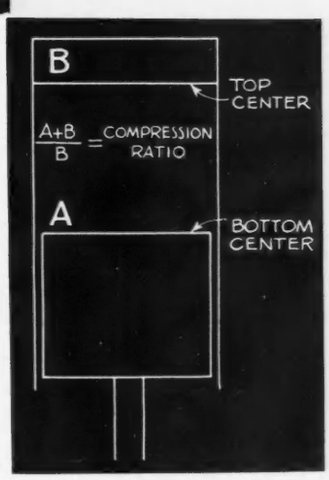
has been able to show not only a reduction in the number of gallons used but also a reduction in the gasoline cost.

For the most part these instances have occurred where the loads were particularly severe or where the schedules were fast or where the schedules were fast considering the loads carried. In hilly country it is often possible to keep the truck in a higher gear on the grades and in that way save gasoline and in almost every case it was possible to either make a schedule that previously was impossible or to shorten an existing schedule.

Strangely enough maintenance costs of the trucks with a compression ratio best adapted to get the most out of either regular or premium gasoline are lower. We say strangely, for one reason. To many fleet operators more power means more maintenance without exception. An analysis of the facts explains the reduction in maintenance costs quite clearly.

WITH a high compression ratio less fuel is burned and more power is produced. Less fuel means that less heat units actually enter the engine from the carburetor for a given number of miles and more power means that a greater percentage of the heat units that do enter the engine are converted into mechanical power. It naturally follows that less heat has to be dissipated through the moving parts, the cooling system and the exhaust pipe. The result is a cooler running engine with cooler lubricating oil which has a greater lubricating value. The effect of the lower temperatures on the life of the engine parts is obvious. On some vehicles where the temperature was checked before and after changing the compression ratio, the water was found to be 15 to 20 deg. cooler at operating temperatures after the change. The temperature of the exhaust gas at the exhaust ports was about 200 deg. cooler with the engine operating.

There is some confused thinking about the increased bearing pressures that go with increased compression ratios. As a matter of fact increased compression ratios do increase



Graphic definition of compression ratio. A—piston displacement; B—combustion chamber

LOW DOWN ON HIGH COMPRESSION

the explosion or downward thrust and increase the load on the bearing but the peak bearing pressure does not come at this point. The inertia pressures which might be described as the pressure required to stop the upward travel of the piston on the exhaust stroke at top dead center and pull it down is by far the greater pressure on the bearings. By increasing the downward stroke pressure there is a decided tendency to cancel the inertia pressure. This is born out by experience in some cases where increasing the compression ratios lengthened the life of con.-rod bearings 100 per cent.

When a fleet operator contemplates raising the compression ratio the first question that comes up is, "What are the limits? How far can I go? What do I do for regular gas? What do I do for premium gas?"

UNFORTUNATELY these questions cannot be answered with a sweeping statement nor can a formula be applied which would give the answer. Each individual engine model is a separate case and experiment and experience is necessary to determine the amount of increase in the compression ratio. Some truck manufacturers can supply the operator with all the necessary information on their make of truck and furthermore some of them can supply all the parts necessary to make the change-over and with them an outline of the procedure, in which case the problem is solved.

At any rate the present compression ratio must be known. This information can be furnished by the dealer, the branch or factory, if you get in touch with them. If for any reason the information is not available from these sources, here is a method of figuring it.

The first step is to find the piston displacement of one cylinder. To make accurate measuring possible in a later step, it is necessary for this displacement to be given in cubic centimeters instead of cubic inches. As there are 16.39 c.c. per cu. in. the displacement in cu. in. must be multiplied by 16.39. The formula for the piston displacement of one cylinder in cubic centimeters is:

Bore X Bore X Stroke X .7854 X 16.39 equals displacement in c.c.

For example, the formula for a 3½ X 5 in. engine would be 3.5 X 3.5 X 5.0 X .7854 X 16.39 equals 788.35 c.c.

THE next step is to find the volume of the space above the piston when the piston is at top dead center. The volume can be figured mathematically but to avoid the complicated use of figures, instructions for a fluid method of determining this volume are given. If the following operations are performed carefully an accurate ratio can be determined.

Remove the cylinder head and thoroughly remove the carbon from the top of the block and from the combustion chamber. Secure from a druggist a glass cylinder graduate of 250 c.c. capacity. Fill it to exactly 250 c.c. with top cylinder lubricant or kerosene, preferably top cylinder lubricant.

Now with the used head gasket clamped tightly in place on the top face of the block with metal strips and C clamps or some other means, and the piston at exactly top dead center, pour the fluid to the top level of the gasket in one cylinder opening. Be sure that the fluid is level with the top of the gasket watching carefully for inaccuracies due to the capillary or creeping action of the fluid. Do not let any spill over or leak as the amount poured out is to be measured.

Let the graduate stand for a minute to let the fluid from the sides drain

Fill Out This Questionnaire

And mail it to Commercial Car Journal, Philadelphia, Pa. Your information will be studied by experts who will recommend a higher compression which will enable you to get the most from regular and premium gasolines.

Date_____

Fleet Operator_____ Address_____

Vehicle Make, Model_____ Eqpt. No._____

Year and Serial No._____ Speedo. Read._____

Capacity_____ Avg. Payload_____

ENGINE Make, Model and Serial No.	
No. Cyl. and Valve Arrangement	
Bore and Stroke—Displacement (cu. in.)	
*Head Volume and/or Depth (See note below)	
Compression Ratio	
*Compression Pressure lb./in.^{2} at R.P.M. (See note below)	
IGNITION Make and Model, Single or Double	
Spark Timing (Distributor adv. or ret.)	
Is This Factory Standard Timing?	
Degrees Automatic Spark Advance	
SPARK PLUG Make and Heat Range No.	
Average Life of Spark Plug Miles	
CARBURETOR Make and Model	
Adjustment. Size or number of each jet	a. Venturi
	b. Main jet
	c. Other jets
	d.
	e. Float level
GOVERNOR Make and Type (Suction or Mechanical)	
Set for r.p.m.	Set for m.p.h.
PISTON Type and Material	
VALVE Tappet Clearance in use	
Make and type of exhaust valve Factory Standard or . . .	
GASOLINE Used, Brand-octane Number	
FUEL ECONOMY (Miles per Gallon)	
Avg. No. Miles Operated per Month	
Rear Axle Ratio	
Tire Size	
TYPE OF OPERATION (Explain fully in letter) Light, Average or Heavy	
CHARACTER of Country Traversed Level, Hilly, Mountainous (Explain in letter)	
DETONATION—Speed at which detonation ceases on acceleration with wide open throttle. (Explain fully)	
Is new ratio to be for regular or premium fuel?	
Describe fully engine condition and any unusual operating characteristics. NOTE PARTICULARLY if lowering the head will affect water pump, governor or other connections, or if piston overrides top of block.	

Signed_____

*To be filled in by Laboratory.

back. Then read the amount left in the graduate. Subtract this amount from 250 c.c. and record the answer. For the sake of convenience refer to this volume as X.

PLACE the cylinder head in a vise upside down so that a spirit level laid lengthwise and crosswise will show it level in both directions. With a clean spark plug screwed into place and the graduate again full to the 250 c.c. mark, pour until the combustion chamber of one cylinder is exactly level. Let the fluid drain back from the sides of the graduate and then read the amount left in the graduate. Subtract this amount from 250 c.c. and refer to the answer as Y. Now X plus Y is equal to B in the illustration.

The volume of the piston displacement of one cylinder in cubic centimeters (obtained by the formula) plus the volume of the space above the piston at top center (B) divided by B is the compression ratio. For example if the piston displacement of one cylinder is 300 c.c. and the amount of fluid poured on top of the piston at top center with the gasket clamped down (X) is 10 c.c. and the amount of fluid poured into the combustion chamber with the head inverted (Y) is 50 c.c., then 300 c.c. plus 10 c.c. plus 50 c.c. equals 360 c.c. Then 50 c.c. plus 10 c.c. equals 60 c.c. Dividing 360 c.c. by 60 c.c. the answer is 6.0. The compression ratio is 6 to 1.

In planning to change a given ratio it is only necessary to divide the piston displacement of one cylinder in cubic centimeters plus the volume above the piston at top center in c.c. by the desired ratio minus one and the result is the desired combustion chamber volume in cubic centimeters. Subtract the volume measured when the fluid was poured into the clamped down head gasket (X) from this desired volume and pour the balance of this volume into the combustion chamber of the inverted level head. Mark the level of the fluid with a punch. This is the point to which the head must be milled to reach the desired ratio.

For example, if the piston displacement of one cylinder is 300 c.c. and the amount of volume to gasket top level (X) is 10 c.c. and the inverted head volume (Y) is 50 c.c. and the desired ratio is 10 to 1 then:

300 c.c. plus 10 c.c. plus 50 c.c. equals 360 c.c.

360 c.c. divided by (10 minus 1) or 9 equals 40 c.c.

Subtract 10 c.c. (volume X) from 40 c.c. and the answer is 30 c.c. which is the desired inverted head volume (Y).

(TURN TO PAGE 44, PLEASE)

BLONDES—BRUNETTES ARE WINTER WORRIES

(CONTINUED FROM PAGE 25)

of the results has been the development of two new grades of engine oil for cold weather operation. They are 10W and 20W. While on the subject of lubrication it might be added that a little lubrication of the interior of cooling systems is just as essential as it is anywhere else. To find a pressure fitting for cooling system interiors would be a hard job, but a little soluble oil added through the radiator filler will prevent the formation of rust.

To depart from the subject of cooling systems, there are several winter routines that must be performed if you intend to cheat "dat old debble winter" out of some part of his usual fee. Engines must be tuned for easy starting if the battery is to survive. Lighting systems must be gone over to get clean solid connections to prevent high resistance at this points which would be a drain on the battery. Lighting systems become more important as State laws require more lights which represent a greater total drain even when they are in good order—as they must always be.

The battery should be brought up to a specific gravity reading of at least 1.225 by a battery charger. Batteries below this point may succumb to cold weather loads. The generator charging rate should be set to an output adequate for the type of work the truck is to perform.

Skid chains should be gone over and cross links replaced so that they are ready for mounting at the drop of a hat, which drops at approximately the same speed as a snowflake. Various types of defrosting equipment for windshields make the driver a safer man to whom to entrust a load of merchandise.

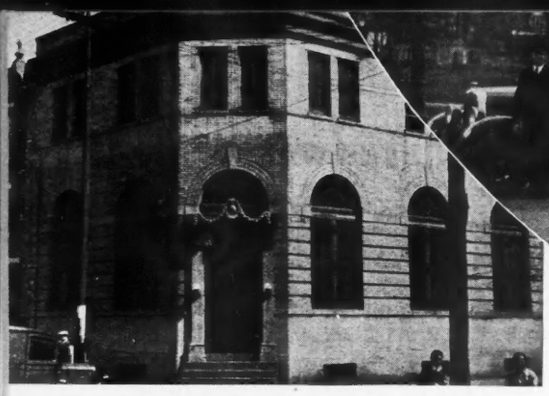
Winter preparation is not a speculation. It brings results and these results show up on the cost sheet. When the officers of the company go over the monthly cost sheet the fleet manager can bask in their warm smiles and in that way prepare *himself* for winter.

ANTI-FREEZE CHART

TEMPERATURE EXPECTED (FAHR.)

Cooling System Capacity in Qts.	20° ABOVE			10° ABOVE				ZERO				10° BELOW				20° BELOW				30° BELOW			
	*ALCOHOL Sp. Gr. .9780	E. GLYCOL Sp. Gr. 1.00	METHANOL	*ALCOHOL Sp. Gr. .9700	GLYCERINE Sp. Gr. 1.080	E. GLYCOL Sp. Gr. 1.040	METHANOL	*ALCOHOL Sp. Gr. .9600	GLYCERINE Sp. Gr. 1.108	E. GLYCOL Sp. Gr. 1.050	METHANOL	*ALCOHOL Sp. Gr. .9500	GLYCERINE Sp. Gr. 1.120	E. GLYCOL Sp. Gr. 1.060	METHANOL	*ALCOHOL Sp. Gr. .9400	GLYCERINE Sp. Gr. 1.130	E. GLYCOL Sp. Gr. 1.065	METHANOL	*ALCOHOL Sp. Gr. .9200	GLYCERINE Sp. Gr. 1.144	E. GLYCOL Sp. Gr. 1.070	METHANOL
6	1¼	1	1	1¾	3	1½	1¾	2½	4	2¼	2¼	2¾	4½	2½	2¾	3	4¾	2¾	3	3¾	5½	3	3½
7	1½	1¼	1¼	2¼	3½	1¾	2	2¾	4½	2½	2¾	3½	5¼	3	3¼	3½	5½	3¼	3½	4¼	6½	3½	4
8	1½	1½	1½	2½	4	2	2¼	3¼	5½	2¾	3	4	6	3¼	3½	4	6½	3½	4	5	7¼	4	4½
9	1¾	1¾	1½	2¾	4½	2¼	2½	3½	6	3	3¼	4½	7	3½	4	4½	7¼	4	4½	5½	8	4½	5¼
10	2	1¾	1¾	3	5	2½	2¾	4	6½	3½	3¾	4¾	7½	4	4½	5½	8	4½	5	6	9	5	5¼
11	2¼	2	2	3½	5½	2¾	3	4½	7¼	3¾	4	5¼	8½	4½	5	5¾	9	5	5¾	6½	10	5½	6¼
12	2½	2¼	2¼	3¾	6	3	3½	4¾	7¾	4¼	4½	5½	9	4¾	5¼	6½	9½	5½	6¼	7½	11	6	6¾
13	2½	2½	2¼	4	6½	3¼	3¾	5¼	8½	4½	4¾	6	10	5¼	5¾	7	10½	6	6¾	8½	11½	6½	7½
14	2¾	2½	2½	4½	7	3½	4	5½	9	5¼	5¼	6½	10½	5½	6¼	7½	11	6½	7¼	9	12½	7	8
15	3	2¾	2¾	4½	7½	3¾	4¼	6	9¾	5½	5½	7	11½	6	6¾	8	12	6¾	7¾	9½	13½	7½	8½
16	3¼	2¾	2¾	4¾	8	4	4½	6½	10½	5¾	6	7½	12	6½	7¼	8½	13	7¼	8¼	10	14½	8	9¼
17	3½	3	3	5¼	8½	4¼	4¾	6¾	11	6	6¾	8	13	7	7½	9	13½	7½	8¾	10½	15½	8½	9¾
18	3¾	3¼	3¼	5½	9	4½	5	7¼	11¾	6¼	6¾	8½	13½	7¼	8	9½	14½	8	9¼	11	16	9	10¼
19	4	3½	3¼	5¾	9½	4¾	5¼	7½	12½	6½	7	9	14½	7½	8½	10	15	8½	9¾	11½	17	9½	10¾
20	4	3½	3½	6	10	5	5¾	8	13	7	7½	9½	15	8	9	10½	16	9	10¼	12	18	10	11½
21	4¼	3¾	3¾	6½	10½	5¼	6	8½	13½	7½	8	10	16	8½	9½	11	17	9½	10¾	13	19	10½	12
22	4½	4	4	6¾	11	5½	6¼	8¾	14½	7¾	8¼	10½	16½	8¾	9¾	11½	17½	10	11¼	13½	20	11	12½
23	4½	4¼	4	7	11½	5¾	6½	9¼	15	8	8½	11	17½	9¼	10¼	12	18½	10½	11¾	14	21	11½	13¼
24	4¾	4¼	4¼	7¼	12	6	6¾	9½	15½	8½	8¾	11¼	18	9½	10¾	12½	19	10¾	12¼	14½	21½	12	13¾
25	5	4½	4½	7½	12½	6¼	7	10	16½	8¾	9¼	11½	19	10	11¼	13	20	11¼	12¾	15	22½	12½	14¼
26	5¼	4¾	4½	7¾	13	6½	7¼	10½	17	9	9½	12	19½	10½	11¾	13½	21	11¾	13¼	16	23½	13	14¾
27	5½	5	4¾	8¼	13½	6¾	7¾	11	17½	9½	10	12½	20	11	12	14	22	12	13¾	16½	24½	13½	15½
28	5¾	5	5	8½	14	7	8	11¼	18¼	9¾	10¼	13	21	11¼	12½	14½	22½	12½	14¼	17	25	14	16
29	5¾	5¼	5¼	8¾	14½	7¼	8¼	11¾	19	10	10¾	13½	22	11½	13	15	23½	13	14¾	18	26	14½	16½
30	6	5½	5¼	9	15	7½	8½	12	19½	10½	11	14	22½	12	13½	15½	24	13½	15¼	18½	27	15	17¼
31	6¼	5¾	5½	9½	15½	7¾	8¾	12½	20	10¾	11¼	14½	23½	12½	13¾	16	25	14	15¾	19	28	15½	17¾
32	6½	5¾	5¾	9¾	16	8	9	13	21	11¼	11¾	15	24	13	14¼	16½	26	14½	16¼	19½	29	16	18¼

Find the cooling system capacity of the truck in question in the first column, and by following the column across the chart, it is possible to find the amount of anti-freeze required for the cooling system. Alcohol in the chart corresponds to 188 proof. When 200 proof alcohol is used, reduce the amounts listed in the table by 10 per cent.



Above—Home of the Protective Motor Service. Right—Some of the trucks and guards. Below—Money is counted by tellers and placed in pay envelopes by assistants

Beating Bandits with Armored Trucks

Hauling Millions Daily in Fleets of Fortresses Is a Well-Organized Business That Is Licking Organized Crime

MILLIONS of dollars in cash, securities and valuables are toted in motor trucks daily through the streets of the nation's cities. The amount is so stupendous that it is impossible to know exactly what it totals. In all probability the reader more than once calmly walked by a million dollars without realizing that he was but a foot's distance from it. But within that 12 in. of space there was a 3/16 in. plate of bullet-proof steel! These millions, stacked in rows behind steel walls, are quietly and methodically carried through the streets, right under the public's nose, in trucks that are virtually steel fortresses on wheels.

Engaged in this seemingly quiet but precarious business are approximately 24 armored trucking services throughout the country operating some 2000 or more trucks. What part these trucks play in this strange game of transporting millions, what transpires behind their steel walls, what thoughts are on the minds of those tight-lipped guards, what happens behind the steel-barred doors of the armored trucking company's offices are matters of conjecture to the curious. A typical operation investigated by the writer throws light on these questions. The subject is the Protective Motor Service Co., Inc., of Philadelphia which boasts an unbroken record in the safe handling of millions of dollars in cash and securities for financial and commercial institutions.

In 1922 Captain William Marsh (one-time Captain of the Pennsylvania State

Trucks back up to the door for loading while General Manager West (right) looks on

The pay-off . . . when guards act as paymasters and the armored truck is the bank

Capt. Wm. Marsh

By STANLEY GERSTIN

THIS is a story that draws aside the curtain on a trucking vocation that has made it possible for millions in cash and valuables to be hauled on public highways with a security that is almost perfect. It tells what goes on behind the scenes to make this security possible. It is a drama in which trucks play a leading role.

A shot in time saves lives . . . hence target practice

Police and Superintendent of Police at the Baldwin Works, Eddystone, Pa.), arrived at a momentous decision. The decision was the out-growth of an idea that crime prevention was better than crime detection and that it was better to have a steel wall between a guard and a murderer than six feet of earth. When a man is killed no amount of detection will bring him back to life. The protection of money, of course, is important, but money can be insured and replaced, and so in the final analysis protection of money becomes secondary. If the criminal can be prevented from committing the crime by making the task hard for him, the situation can be nipped in the bud.

So in 1922 Captain Marsh started the Protective Motor Service Co., Inc., with an armored truck of his own design, two guards (without uniform) and himself. Customers were few but prospects many. The armory consisted, in part, of a pump gun and army Colts, plenty of ammunition and the steel truck. This fortress on wheels had bullet-proof glass and steel plate, protected openings on four sides so that the men could see all about them, and guards who were crack shots. There was no locked partition between cab and truck body which fact permitted the guards to move about freely.

In contrast to the first truck, among the first of armored trucks in the United States, vehicles in use today are even more efficient, are lighter and are protected with stronger steel plate and glass, are faster and are designed with the idea of simplicity.

If you wonder what the men are like, how they are selected, trained, handled, whether or not they eat spinach

BEATING BANDITS WITH ARMORED TRUCKS

The contents of the bag may have little value yet he protects it with his life

or chew nails, you may be surprised to learn that the majority of them are settled family men, property owners, highly pensioned police, ex-marines and ex-army and navy men, former chief petty officers, sergeant majors and first sergeants of marine and army corps. All are careful and can carry out orders, know how and when to shoot. They are all insured. A truck detail is under the "senior" once they leave the office with their orders, and what transpires then is up to them. It is incumbent upon the senior man (not always in age, sometimes in point of service) to handle whatever situation arises. Thousands of dollars are his responsibility. With him may be as many as seven men, the number depending not so much upon the amount of money carried as upon the type of job being done. For the service of making a daily collection you may pay from 40 cents up, and for the delivery of a modest weekly payroll, $3.50. We will follow their routine in detail later on.

Usually the same men are sent out on the same route. It is the belief of Captain Marsh that men familiar with their route know what to look for, know what is extraordinary and what is normal, study in detail the localities in which they make their stops, plan accordingly for an emergency. To make a practice of sending new men on different routes daily does not augur well for preparedness. Consequently the men generally know where they are going, what their job is. It is essential that these men familiarize themselves with the lay of the land. Familiarity with the location and rapidity of action is essential during a hold-up. Men familiar with their particular job are better able to act quickly. In view of the fact that hold-ups seldom take more than two minutes, and shots are few, the men must act quickly. New men are on old routes only when they are replacing an absent guard who has completed his 48 hour weekly shift and must take time off.

New and old guards alike are kept primed for this work. Target practice is held regularly on Tuesday, Wednesday and Friday nights. Each man shoots ten rounds and receives instructions. They fire army Colts at a printed target attached to a steel wall from a distance of 20 yards. Practice is done in the company's garage where space has been provided. The rest of their nights are equally provided for. Monday they bowl. Saturday night they work. Thursday nights off. Their ages are inconsequential.

For all practical purposes the men lack imaginations with respect to their job. Not that they are void of imagination, but simply that what they handle has little significance to them. A sealed package may contain a million dollars in securities or a broken doll. In either case, it's a job to be done and they aim to do it well. If asked, they never know what they carry, always have a suspicion, could almost tell you in round numbers if they would talk.

A MAN who carries out orders precisely is never fired, has a life job with the company. Negligence is cause for loss of job. A typical case is when a guard fails to carry his gun in his hand. Spying gangmen noticing such oversights, plan accordingly. If a man needs to be cautioned about this more than twice, he is fired, simply told he is not suitable for the work.

Their daily routine really begins the day before when they go to the office to get their assignments for the following day. These assignments are posted, may be seen by anyone who can get by the burly guard at the locked door. The guard carefully scrutinized the writer, asked him the identity of an object in his pocket which caused the pocket to bulge and which proved to be a camera.

Having noted their assignments, the men report the following morning and draw their receipt books to which is attached a copy of their assignments. At one window they turn in a check for their gun, then move to the next window and requisition whatever packages have been kept in the company's vault for delivery that day. They sign for each package received. Trucks back up to the door and guards station themselves along the street while trucks are being loaded. The men enter their trucks and drive away and from then on are on their own responsibility in their own fort.

THE service is carried on with the greatest simplicity so that the men will have as little clerical work as possible. When a pick-up is made, the guards do not leave a signature, but when a pick-up fails to materialize, a signed statement is obtained by the men to that effect. They obtain receipts for deliveries. A package held at the office over night and delivered the following day is signed for by the guard when it is drawn out and for which he turns in a receipt upon his return to the office. Likewise, tellers sign for packages brought in by the men. A dope sheet kept by the tellers enable them to know what stops are made, is marked accordingly, and checked with the men's reports, then turned over to the bookkeeper who checks again. Every package is covered by insurance during the time it is in the company's hands. All trucks carry insurance of $1,000,000. On long trips, this insurance is increased to $2,000,000 per truck.

In addition to regular collections and deliveries, the company makes up payrolls and serves as paymaster. A check received by the company in the amount of the total payroll is cashed by them. On Thursdays tellers and counters stand before tables stacked with silver and bills. They work in pairs, one man counts, the other seals

(TURN TO PAGE 44, PLEASE)

New Products on Parade

Descriptions of the Latest Items Put on the Truck Market by Equipment and Specialty Manufacturers

Ammco Valve Seat Grinder

THE Ammco Valve Seat Grinder operates concentrically and is driven by any ¼-in. electric drill and can be adapted to the most popular types of valve pilots now in use.

A flexible resilient coupling is used as a drive shaft and it serves the double purpose of permitting the grinding of valves at an angle under the cowl and also enabling the operator to vibrate the tool sufficiently to keep the abrasives clean and sharp.

Molded abrasive pads are used instead of stones. They have unusual grinding life and are easily and quickly replaced when worn.

Manufactured by the Automotive Maintenance Machinery Co., 830 W. Washington Blvd., Chicago.

Exide Battery Cases

THE new Exide cases are modern without being "modernistic." Panels on the back, front and ends of the cases are recessed, presenting a pleasing effect, and at the same time protecting the lettering

Exide's modern battery case

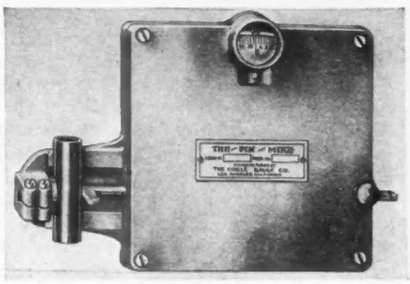
on the panels against scratches and disfigurement due to shipping and handling.

Each design embodies greater strength without looking bulky or unwieldy. Side walls and partitions are unusually thick, providing a high margin of safety.

Partitions and end walls have vertical, tapered ribs inside, making plate assemblies self-wedging, reducing wear and tear of vibration in the car.

Wrist Pin Measuring Device

THE pin "Mike" is a precision instrument for measuring the diameter of wrist pins, bushings, bolts and other pins to micrometer accuracy. Sizes are read



The pin-mike

in both decimals and fractions on a dial through a powerful magnifying glass.

The pressure exerted against the pin by the measuring rod is controlled by spring tension which is always uniform.

Correct adjustment is made at the factory and is practically permanent. Accuracy can be checked quickly at any time with a master size pin supplied with each instrument.

Adjustment is by means of a double-screw clamp around the shaft of the disk from which all measurements are made.

It comes in three sizes: 0 in. to ½ in, 0 in. to 1 in., and ½ in. to 1½ in. pin diameters. Marketed by Wilkening Mfg. Co., Philadelphia.

Grease Cartridge

GREASES packed in cartridge form to fit a new type of grease gun are now being sold by the Standard Oil Co.

To fill the new type of grease gun the operator merely slips a factory-loaded cartridge into the barrel of the gun which is then ready for use. The cartridges are of 1 lb. capacity and include several grades of lubricant.

Steel Piston Ring

THESE non-breakable piston rings conform to the cylinder wall and because of the difference of material between the ring and the cylinder block create a highly polished cylinder wall. The metal used is free from stress and there are no hard spots. The heat treating insures uniform rings. Manufactured by the Steel or Bronze Piston Ring Corp., Indianapolis.

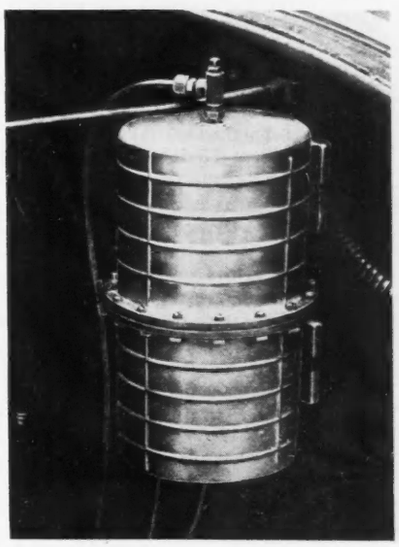
AC Air Cleaner

AN oil bath type air cleaner, known as the AC triplex heavy duty air cleaner, is being manufactured by AC Spark Plug Co. It is recommended for use on engines in extremely dusty territories.

It is quickly interchangeable with the silencer and air cleaner installed on the carburetor as standard equipment. It is designed especially for direct attachment to downdraft carburetors on passenger car engines or trucks equipped with the same engines as used in passenger cars of the same make. In truck service, particularly on construction work, and for passenger cars and trucks used in alkali or extremely dusty territory this AC triplex cleaner is effective.

Oilpure Refiner

THIS oil purifier cleanses and purifies the oil as it circulates through the engine. It removes carbon dirt and metal particles from the oil and it neutralizes



Oil purifier hook-up

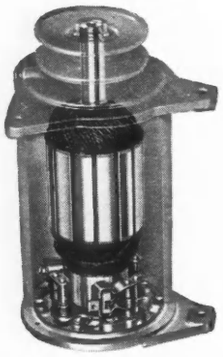
the acid present in the oil as a result of combustion. Water condensation is removed by vaporization. The company says that crankcase draining is not necessary when this refiner is used. The truck size unit is 10½ in. high and 5½ in. in diameter. It is made by the Oilpure Refiner Co., 308 N. San Fernando Rd., Glendale, Cal.

NEW PRODUCTS ON PARADE

General Armature Assembly

A NEW high rate charging "change over" assembly No. 9301-HR is being made by the General Armature Corp., 1526 S. Wabash Ave., Chicago.

The special armature and end plate assembly, which constitutes this unit, make it easy for the repairman to convert a standard equipment generator into one



Change-over armature assembly

providing 18 ampere charging rate. This provision for high rate output safely takes care of the added current demands of "extra" load caused by electrical equipment such as radios, heaters, cigarette lighters, special lights, etc.

This armature can be used to replace the original armature and end plate on such trucks as Chevrolet, Dodge, Fargo, Fuller Johnson, G. M. C., International Harvester, Marmon, Marquette, Oakland, Oldsmobile, Reo, Studebaker and Viking.

Gatke-Ramsey Timing Chain

THE Gatke Corp., 228 N. La Salle St., Chicago, have added the complete line of Ramsey Silent Timing Chains.

The Gatke-Ramsey Timing Chains are built around an exclusive feature—the patented roller bearing joint which contains the true convex to convex pin surfaces necessary to give accurate roller bearing action. Absolutely quiet action is assured, and the elimination of friction reduces wear for longer life and greater efficiency; it also checks vibration. Gatke-Ramsey Chains operate in either direction and are "pre-stretched" to run for long periods.

Tail Gate Lock

A NEW tail gate lock is announced by the A. L. Hansen Mfg. Co., Chicago, for use on various types of commercial bodies. The lock may also be used, two per body, where there is a ¾ rear door and end gate, as well as for spare tire compartment box.

The lock consists of a center mechanism, rods and striker bolts. It is installed inside the gate and fits flush with the surface of the gate. Rods of adjustable length are provided for fitting lock to gates of various lengths. This is done by cutting rod to required length.

Weed Chain Adjusters

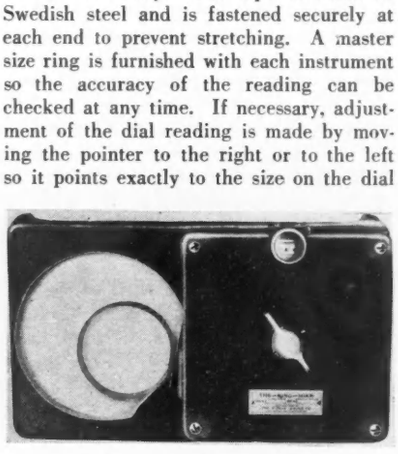
NO. 11 Weed tire chain adjusters for large hub caps and wire wheels have been added to the Weed chain line. They were designed to help users get longer wear and greater efficiency from their tire chains.

A natural slack of at least one side chain link usually develops in about one block because the chains set themselves to the shape of the tire. Weed Tire Chain Adjusters take up this natural slack. They are made in a flexible multiple spring construction with an adjusting chain that allows for take-up. A tire chain repair kit is also offered by the company, American Chain Co., Bridgeport, Conn.

Piston Ring "Mike"

THE ring "Mike" for measuring the diameter of piston rings measures all ring sizes on the same center line. The center line of the ring does not change with each ring size measured. Readings are made on a dial through a powerful magnifying glass in both decimals and fractions.

Neither moving parts nor the measuring tape are involved in adjusting the ring "Mike." The pointer is set at the factory to read correctly. The tape is made of Swedish steel and is fastened securely at each end to prevent stretching. A master size ring is furnished with each instrument so the accuracy of the reading can be checked at any time. If necessary, adjustment of the dial reading is made by moving the pointer to the right or to the left so it points exactly to the size on the dial



Measures piston rings

corresponding to the size of the master ring. It is distributed by the Wilkening Mfg. Co., Philadelphia.

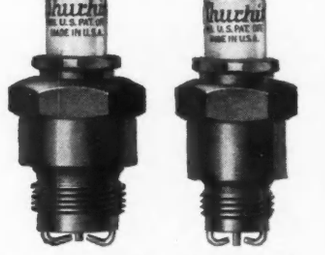
Houghton Lubricants

A SERIES of transmission lubricants possessing extreme pressure characteristics and having high film strength is being marketed by E. F. Houghton & Co., Philadelphia.

The Houghton oils known as vital transmission extreme pressure lubricants claim such advantages as no separation, settling or deterioration, non-corrosive, non-foaming and does not boil off light vapors or thicken up in use. The oils have been tested in trucks and buses and found to reduce gear tooth and bearing wear.

Shurhit Spark Plugs

TWO new types of heavy duty spark plugs have been added to the line manufactured by Shurhit Products, Inc., Waukegan, Ill. These two new members (SP-9 and SP-10) are of the double elec-



Shurhit's SP-9 and SP-10 plugs

trode type, and are specially designed for service on trucks and buses having hot engines.

Special porcelain employed not only resists high temperatures but properly controls the flow of heat. These cores stand up under 30,000 volts. Shurhit electrodes have high electrical emissivity, designed to promote efficient combustion and winter starting easier.

Stackhouse Tire Groover

THE Stackhouse "pull-type" electric tire groover is for use on small trucks. With it you can groove all kinds of tires with either a straight circumferential or design tread. Imbedded cartridge-type element is a 165-watt unit and generates 420 deg. of heat in the blade. Blades are hand ground from the finest and hardest steel obtaintable. Bailey & Co., 219 N. Sixty-third St., Philadelphia, is the manufacturer.

Permite Pump Packing

THE new Permite Water Pump Packing Compact contains an assortment of 29 individual sets of five sizes of water pump packing. This handy Permite compact set will service practically every make and model of popular priced car and truck. A chart printed on the inside top of the "handy counter compact" acts in the double capacity of a "silent salesman" and as application data. It is manufactured by Aluminum Industries, Inc., Cincinnati.

Aluminum Cylinder Heads

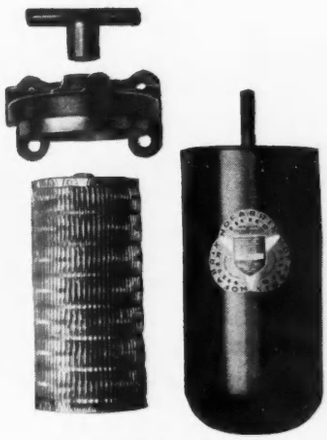
PERMITE aluminum cylinder heads by Aluminum Industries, Inc., Cincinnati, effect a 5 to 15 per cent increase in horsepower and a 10 to 15 per cent decrease in fuel consumption for motorists who replace old-type iron cylinder heads, the manufacturers claim.

Production is at present restricted to Plymouth passenger cars and V-8 Fords although the company expects soon to supply nearly all models.

Cuno Nofabrix Filter

A NEW Nofabrix Filter is made by the Cuno Engineering Corp., 80 S. Vine St., Meriden, Conn., for truck and bus service. It is applicable to all partial flow lubrication systems in the heavy duty field.

To eliminate vibration, a cast iron head with provision for four mounting bolts is



Nofabrix filter

provided. A single, steel center bolt welded to the bottom of the sump passes through a bore in the head casting and protrudes through and above it. A heavy Tee handle threads on the end of the bolt and holds the head and sump rigidly together.

To renew the Nofabrix cartridge, no tools are required. The Tee handle is unscrewed to release the sump which contains the used cartridge and accumulated sludge. The sump is removed, the old cartridge and sludge dumped out and the new cartridge inserted. The whole operation requires only a very few minutes.

Road Flare

THE heavy gage metal bright red flares made by the Kilbourn-Saur Co., Fairfield, Conn. Tested in severe rain it burned twice as long as the time required by law. Available singly or in pairs in a metal container.

L and H Wheel Balancer

THIS balancing stand makes balancing easy and accurate. The wheel turns on sturdy, sensitive ball bearings without drag or interference of any kind. A real precision machine which can be used with any type of automobile wheel. Can be attached to wall, post or bench. Spindle easily removed when not in use. Harley G. Loney Co., 16517 Wisconsin Ave., Detroit, is the maker.

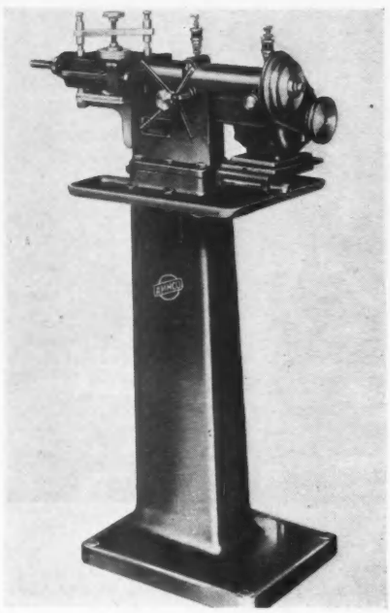
Bonney Holding Tool

THIS is a tool for holding, inserting, removing and picking up screws, bolts, taper pins, etc. The tool consists of four fingers on a tube which operate within a second tube. The fingers open to grasp the object when pressure is brought on the plunger. On release of the pressure a spring causes the fingers to close tightly around the object. It is made in three sizes, 4, 6, 8 in. reach. All are finished in full nickel. Bonney Forge & Tool Works, Allentown, Pa., is the maker.

Ammco Pin Boring Machine

THE new Ammco Piston Pin Hole Boring Machine provides a real production method for automotive service shops doing piston fitting work.

It bores pin holes in rod bushings and pistons to exact size and provides a mirror finish, giving full bearing surface without any possibility of bell-mouthing or



Pin boring machine

other handicaps to present-day work.

The range of the machine covers pistons from 2 in. to 5½ in. and piston pin holes from 0.734 to 1¾ in.

The machine is fully automatic and has three operating speeds to accommodate all types of piston and rod bushings; and bores cast iron, bronze, alloy, brass or aluminum equally well.

For information write to Automotive Maintenance Machinery Company, 830 W. Washington St., Chicago, Ill.

SOS Emergency Coil

THIS coil is for the use of the trade. In case of broken-down condenser, coil, defective points, cold or wet engine, the coil can be quickly hooked into the ignition system and the motor driven away under its own power. The only connections necessary are a ground to the engine, clamping the live side of the generator cut-out and plug into the center of the distributor. The coil has hooks to suspend it from the radiator brace rod. Made by K-W Ignition Corp., Cleveland.

Manley 580 Jack

AMONG the features of the new Manley No. 580 hydraulic service jack are low rest plate four inches from floor with four-inch wheels so that it will go under all cars easily. Raises to height of 20 in. Quick in operation. Easily positioned. Swivel casters allow jack to be used as a dolly to shift cars. Jack can be raised from lowest to highest position with six strokes of handle. When jack takes load the quick raising feature cuts out and the load is raised at normal speed. Manley Mfg. Div., American Chain Co., Inc., York, Pa.

Chemical Spray Cleaner

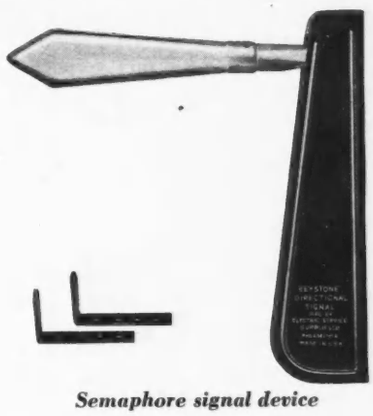
THE Hypressure Jenny cuts the amount of labor required for paint stripping of vehicles preparatory to painting, cleaning shop floors or automotive parts. The model D is operated by one man and is fully automatic and foolproof. Can be had in either portable or stationary models. The machine operates from the lighting circuit. Several models are made by the Homestead Valve Mfg. Co., Coraopolis, Pa. The price of the model D is $250.

Keystone Semaphore Signals

KEYSTONE semaphore type directional signals are so placed as to signal both approaching and following traffic and are operated by a switch located within convenient reach of the driver. These signals are equally efficient in day or night operation.

Type A is for use on buses or large trucks, while type C is smaller and hence for use on small trucks and taxicabs. Both are of identical construction and differ only as to size.

The arm is actuated by a solenoid of



Semaphore signal device

ample power, automatically locked in closed position when not in operation. Type A Keystone signals use 6-candlepower, 6 or 12 volt bulbs and require about 6 amperes at 6 volts, or 3 amperes at 12 volts. Type C use 3-candlepower, 6 or 12-volt bulb and require about 4 amperes at 6 volts, or 2 amperes at 12 volts. Both types are operative at a 25 per cent drop in battery voltage.

Slick Ideas

Manifold refitted with down-draft carburetor and drain and (circle) mechanical fuel pump driven by air compressor cam. See No. 1

Modern Fuel System

By John Glass

Shop Operator, Philadelphia

1. To modernize one fuel system it fell our lot to change over to a down draft carburetor and incorporate a mechanical fuel pump in the fuel feed. With the aid of a home made flange and collar to give some spacing we were able to mount a Ford V8 fuel pump over the opening which was originally used for an air compressor drive. The cam that drove the compressor now drives the fuel pump.

The manifold did not present much of a problem. It was turned upside down and with a little tailoring it fit. Then we fitted a down draft carburetor. The problem was to prevent an accumulation of gasoline in the manifold should the carburetor leak.

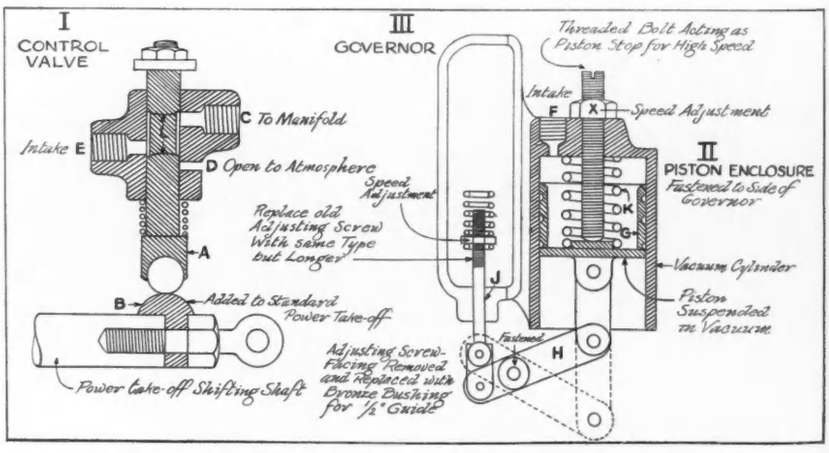
To prevent this the bottom of the manifold was drilled and tapped at each end and at the middle. We connected these three outlets with a drain pipe. This drain pipe was in turn fitted pipe assembled into a Y section for drainage. Incorporated in the tail of the Y is a ball check valve. Gravity keeps the valve open for drainage when the engine is not running but when it is running the vacuum keeps the ball on the seat to prevent the manifold from drawing air at this point.

Two-Speed Governor

By H. T. Nicholson-A. Buescher

Respectively Chief Inspector and Machinists' Foreman, Consolidated Gas Electric Light and Power Co., Baltimore

2. In our work we have found it de-



Cross-section of the two-speed governor hook-up for road-speed and for operating auxiliary equipment. See No. 2

From Skillful Shops

Two-Speed Governor, Threaded Throttle, Wash Rack, Brake Hook-Up and Fuel Pump Installation Are Among Ideas for Fleetmen to Ponder

FLEETMEN pool their wits to perfect mechanical improvements in shop equipment and in truck operation which make for greater efficiency and lower maintenance costs. These inventions all have merit and may be used with success by other operators in their shops and on their trucks. Ideas covered in this article are:

1. Modern Fuel System—By John Glass, Shop Operator, Philadelphia.
2. Two-Speed Governor—By H. T. Nicholson and A. Buescher, respectively Chief Inspector and Machinists' Foreman, Consolidated Gas Electric Light and Power Co., Baltimore, Md.
3. Brake Lever Perch Support—By Walter E. Harris, Shop Operator, Philadelphia.
4. Parts Wash Rack—By Railway Express Agency, New York City.
5. Threaded Throttle—By T. Ross Whitten, Aide to Supt., Transportation Dept., Consolidated Gas Electric Light and Power Co., Baltimore, Md.

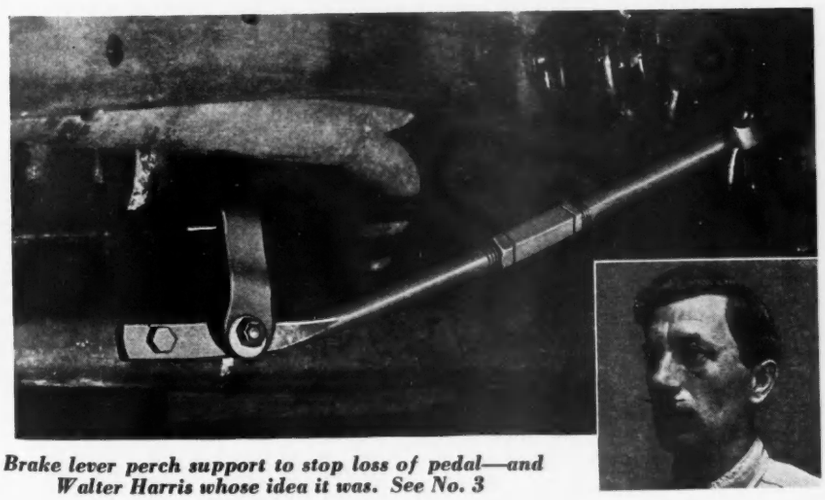
sirable to limit the engine r.p.m. to a lower speed when it is operating auxiliary equipment than we use for maximum road speed. For example 1800 r.p.m. gives a satisfactory road speed but is too fast for operating auxiliary equipment. About 1000 r.p.m. is a desirable speed for operating equipment but is too slow to give satisfactory results in road work. To govern the engine at two different speeds for these two different uses we have worked out the following arrangement.

Referring to the illustration No. 1 is a control valve, the center of which is a movable steel shaft (a) with a smaller section at (L). The valve is mounted so that the end of the shaft (a) will ride against a cam (b) attached to the regular power take-off shifting shaft. A vacuum line is run from the engine intake manifold and attached to the control valve at (c). Unit No. 2 is a piston enclosure fastened to the side of an ordinary Hand governor (unit No. 3). A line is also connected from (e) on the control valve to (f) on the piston enclosure. The speed adjustment (x) on the governor is removed and the shaft extended beyond the case and connected to the piston (g) through the linkage (h).

This arrangement operates in the following manner.

The power take-off is thrown into gear, shaft (a) on the control valve is raised. A suction is exerted from the engine manifold through (c) through (e) and (f), raising the piston (g) which pulls the adjustment shaft (j) setting the governor for a lower speed.

When the power take-off is in neutral, shaft (a) moves to a position so that the vacuum drawn from the intake manifold is drawn from open air at (d). No suction is exerted on the piston (g) and spring (k) forces it downward raising the governor adjustment to a higher engine speed regulation. Any combination of speeds can be obtained by changing the adjustments. We have found a combination of 1800 r.p.m. and 1000 r.p.m. very satisfactory.



Brake lever perch support to stop loss of pedal—and Walter Harris whose idea it was. See No. 3

Brake Lever Perch Support

By Walter E. Harris

Shop Operator, Philadelphia

3. On severe brake applications we found that the front brake operating lever perch was deflecting rearward enough to cause a loss of pedal on one make of light job. To remedy this situation we took a piece of 5/8 in. cold rolled steel, flanged it on one end and drilled two holes for bolting to the wishbone. The other end was formed

Threaded throttle for operating auxiliary equipment. See No. 5

into a U to hold the perch. It is not necessary to bolt the U end as a preloaded adjustment keeps it in place. The rod is cut in the middle and a left and right hand thread is cut to accommodate a turnbuckle and lock nuts.

Next the support is installed in place. With a dial gage clamped in place on the hoist to register the normal position of the perch, we adjusted the support by means of the turnbuckle until the perch was held .025 in. forward of normal position. It is important that the supports on each side are adjusted to identical positions or else it will be impossible to equalize the brakes.

It has been our experience that this arrangement works better with a lining with a high coefficient of friction.

Parts Wash Rack

Railway Express Agency, N. Y.

4. This wash rack for small parts swings out of the way under the work bench when not in use. The sloping section is 24 in. square with an opening 7¼ in. square in the center. A removable tank which contains gasoline or kerosene is held in position under the tray by two vertical iron straps, bent and riveted to the under side of the tray at their upper ends. A ¼-in. rod passes below the tank through the straps.

The surface of the tray provides a drainboard for parts which have been washed as well as for unwashed parts. A screen of close mesh, heavy wire, placed about ½ in. below level of liquid prevents parts from falling into the liquid. Like the tank the screen is removed for cleaning. This screen is supported by the bottom edge of a lip 2 in. deep, which extends down into the tank from the center of the tray. This shelf is made narrow, about ¼ in., to reduce the space in which dirt can catch. Material used for the rack will cost approximately $5.00. It is economical in gasoline and saves on labor.

Threaded Throttle

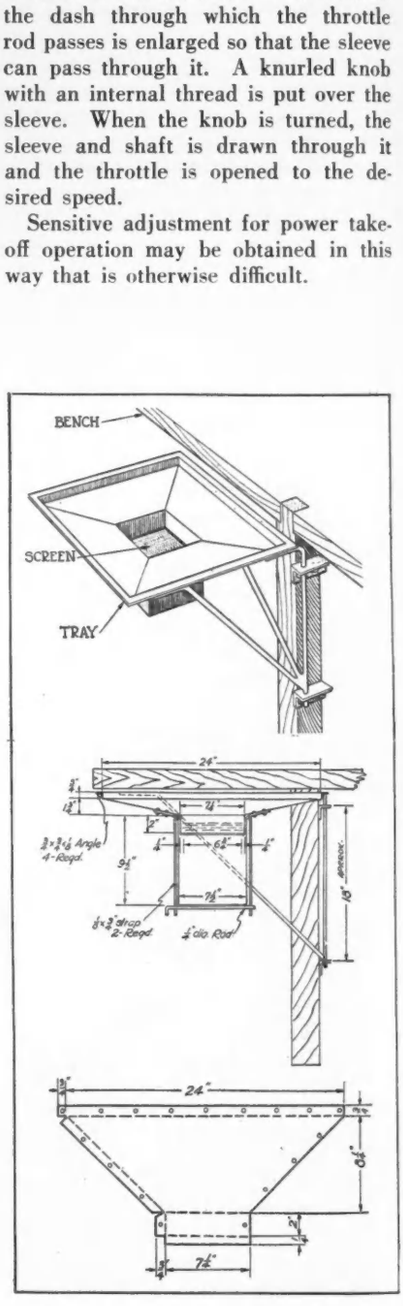
By T. Ross Whitten

Aide to Supt., Transportation Dept., Consolidated Gas Electric Light and Power Co., Baltimore, Md.

5. We are using a simple device which gives a constant desired throttle opening that is not affected by vibration. This is especially valuable for power take-off operation.

A sleeve with an external thread is fitted to the throttle rod. The hole in the dash through which the throttle rod passes is enlarged so that the sleeve can pass through it. A knurled knob with an internal thread is put over the sleeve. When the knob is turned, the sleeve and shaft is drawn through it and the throttle is opened to the desired speed.

Sensitive adjustment for power take-off operation may be obtained in this way that is otherwise difficult.



Wash rack with removable tanks for small parts. See No. 4

WHO WILL ADMINISTER FEDERAL REGULATION?

(Continued from Page 19)

executive subject to change with changes in administration, rather than in the hands of a deliberative board or commission with a relatively long term of office and with the members' terms expiring at different times insuring against sudden changes in personnel and policy.

The Department of Transportation and Regulatory Body Plan

ANOTHER plan of regulation brings together and modifies the two plans already mentioned. It proposes the establishment of a Department of Transportation under a Cabinet member, Secretary of Transportation, to foster, promote and develop all types of transportation facilities of the country, including the regulation of finances, services, safety and general rate policies; and the reorganization of the Interstate Commerce Commission to exercise judicial or quasi-judicial control over the carriers.

Those who favor this plan point out that it would commit to the responsible supervision of one high Federal executive officer, the promotion of transportation. Promotion, they urge, is not compatible with the quasi-judicial functions of judging disputes, correcting abuses, criticizing practices and punishing violations, and therefore the two functions should be divided between an executive promotional officer and a quasi-judicial board. They urge also that the same individual or commission should not attempt promotion of the transportation industry generally and the regulation of rates.

Those who oppose this plan do so because they fear the adverse effects of changes in the Secretary of Transportation and possibly changes in the personnel of the Department of Transportation with the veering winds of partisan politics and the possibility of partisan political administration of transportation.

The Transportation Board Plan

ANOTHER proposal, similar in many respects to the plan proposing the establishment of promotion and regulation by a Department of Transportation and the Interstate Commerce Commission, suggests the establishment of a Board of Transportation Development to function as a promotive and controlling agency concerning itself with finances, expenditures, credit, consolidation and related matters; and the regulation of rates and services of the carriers and of their relations with their patrons by a commission, preferably by the Interstate Commerce Commission.

The regulatory commission would, under this plan, have jurisdiction over the rates of all types of carriers and their relations with their patrons as a quasi-judicial body.

Those who favor this plan point out that it would tend to relieve the Interstate Commerce Commission of the type of work which tends to overburden it—the work of promoting and restraining development—which, they urge, can be better performed by a group of men functioning as a promotive board rather than by a single executive, and better by a board which does not have also the responsibility of rate regulation. They urge that the Board would be less susceptible to political influence and change than an individual, and that planning can be done better by a board than by an individual.

Those who oppose the idea suggest that the Development Board would become a rival of the Interstate Commerce Commission for power, influence and prestige, and thus weaken the quasi-judicial Commission and perhaps weaken itself. It would require careful planning in order to segregate the functions of the Board and Commission to avoid conflict, and tend to add another administrative body to the already imposing list of boards and commissions.

The Director of Transportation Plan

THE suggestion has been made that three regulatory bureaus or commissions be set up under a Director of Transportation, one bureau or commission regulating land transportation including railroad, highway and presumably pipe line; another regulating waterway transportation, and the third air transportation. This plan presupposes the abolition of boards, bureaus or commissions now regulating various types of transportation facilities, and the organization of the Bureau of Transportation under the proposed Director of Transportation as a separate or independent administrative branch of the Federal Government not connected with or related with any department, but subject only to Congress.

This plan, it is urged by its advocates, tends to promote the coordination of the various instrumentalities of transportation. It avoids also the danger of the domination of the quasi-judicial bodies by a cabinet secretary or board. It would tend to relieve the Interstate Commerce Commission of the burden of regulating all forms of transportation. It would not require an extensive reorganization of the regulatory bodies or personnel, since the nuclei of each regulatory body exist in the present Interstate Commerce Commission; the Shipping Board, now in the Department of Commerce, and the Aeronautics Branch of the Department of Commerce.

Those who object to this plan point out that each of the three regulatory bodies would be interested in certain types of transportation and that only the Director of Transportation would be an influence toward the coordination of all forms of transportation.

Separate Motor or Highway Transportation Commission

IT has been proposed that motor truck and bus transportation be placed under the jurisdiction of an independent regulatory body similar in organization to the Interstate Commerce Commission but specializing in the development and regulation of motor and highway transportation only.

Those who espouse this plan urge that it would give motor and highway transportation the benefits of regulation by those who are specialists in this field and who, to use a much overused expression are "motor-minded," and not "railroad or steamship or air-minded."

Opponents urge that a separate commission would add unduly to the expense and complexity of regulation; that it would set up conflicts of authority and jurisdiction with other regulatory bodies.

A Transportation Advisory Committee

IT has been suggested that we take a leaf from the book of our British cousins and organize under a cabinet member, similar in some ways to the British Minister of Transport, an advisory committee on transportation representing railroads, steamship lines, express carriers, pipe lines, highway and motor carriers, air transport companies, highway administrators, shippers, and possibly technicians and economists representing the neutral point of view. This advisory committee would report either to Congress or to the Secretary of Transportation, Director of Transportation, or Transportation Development Board, if these plans of regulation were adopted.

Diamond T Improves Its Entire Line of Twelve 1½-5-Ton Models

New Low for 1½-Ton at $555, Increased Rear Axle Capacity and a New Series of Engines Mark Developments in 1935 Line

DIAMOND T Motor Car Co. has a new line of 12 models from 1½ to 5 tons capacity, featuring three major developments.

The first development is the new low-priced 1½-ton Model 211A, which replaces Model 211, but is priced at $555, with the full-floating axle now standard equipment. The new model includes every feature of the previous model, plus the new developments in hood and cowl design and "pressure-zone" ventilation, and features a $60 reduction in price.

The hood has been lengthened and now reaches the entire distance from radiator to windshield, enhancing the lines of the V type front end. A metal grille with ornamental fins of stainless steel replaces the door-type louvres. This new hood and ventilated V type cab apply to the entire 1935 line.

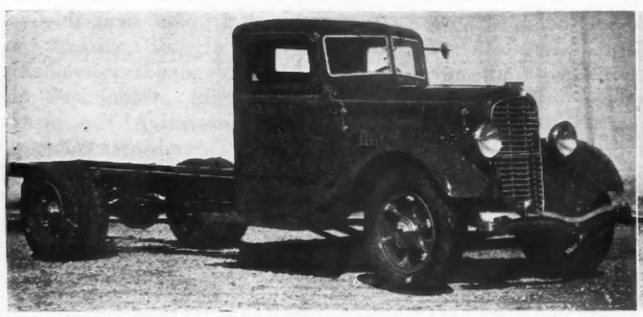
Model 211A continues the use of the Hercules 3⅜ in. x 4¼ in. engine which has been a feature of the Diamond T line for more than a year. This engine has a piston displacement of 228 cu. in. and a torque of 148 lb. ft.

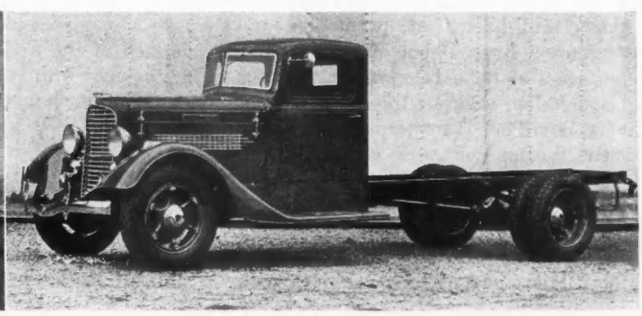
DESIGNED and manufactured exclusively for truck service, this power plant has a heavy 2½ in. crankshaft carried in seven main bearings with a total main bearing area of 85 sq. in. For truck service the engine is conservatively rated at 63 hp. at 2800 r.p.m. Camshaft, water pump and accessory shafts are all driven by wide-faced front end gears. No chains or belts are employed except for the fan. Force-feed lubrication is supplied to all main and connecting rod bearings, with oil passages drilled in the block.

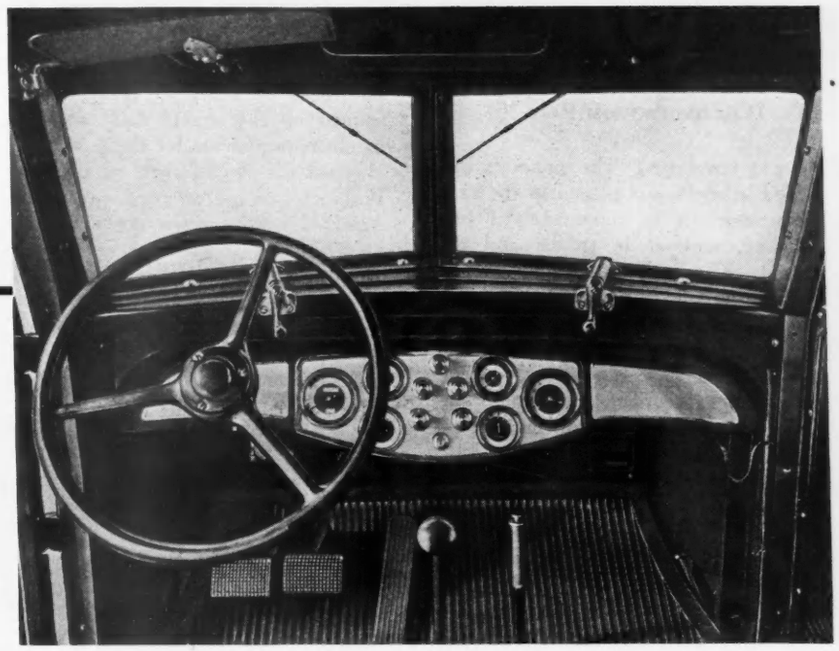
This model has four wheel hydraulic brakes. Hand brake is at the rear of the transmission. A pressed steel frame of taper section secures unusual strength from elaborate cross bracing. Special cross members are employed, and the front cross member and motor support is exceptionally wide, providing additional strength and rigidity.

Clutch and transmission are of conventional design. A new type of flexible mounting has been adopted for the clutch plate, which is 10 in. in diameter. Constant mesh and third speed gears of the transmission employ the full involute tooth form for quieter operation and longer life. It is furnished in a standard wheelbase of 135⅛ in. Special wheelbases of 145 in., 158 in. and 168½ in. are available for bodies to 13 ft. in length.

Model 243 showing new hood and cowl treatment . . . Model 211A 1½-2-ton with full floating axle lists at $555





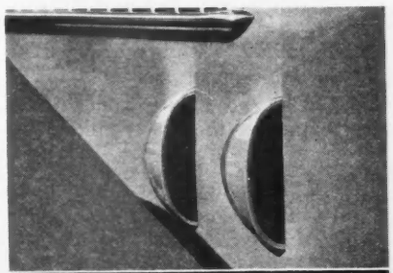


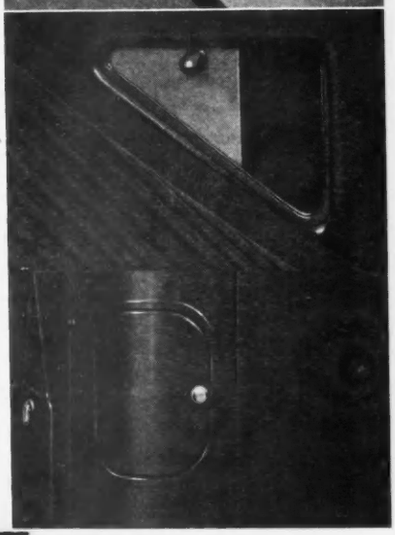
Interior view of the new, all weather steel cab with V-type two-piece inclined windshield

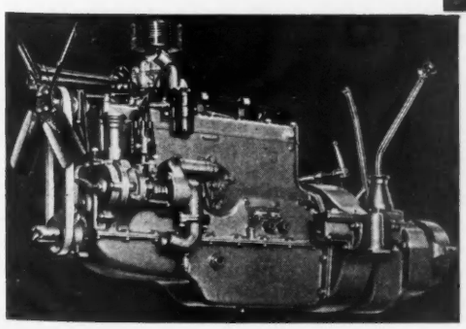
A new all-weather steel cab is used, designed for maximum comfort and distinctive appearance. The V type two-piece inclined windshield is of streamline design and carries two automatic windshield wipers as standard equipment. Windshield frames are chrome plated and sedan type windows are crank controlled. Equipment includes rear vision mirror, dome light, adjustable sun visor, glove compartment, large door pocket and cushioned arm rest. The entire cab is flexibly mounted to reduce vibration. A small door at the rear corner of the cab permits filling the gasoline tank without removing seats. This cab can be supplied in either two-man or three-man widths.

The second development is the new 1½ to 2-ton Model 220 at $666. Special features include a large rear axle of 8,000 lbs. capacity, hydraulic brakes with B-K booster as standard equipment, an 11 in. clutch, and a Hercules engine of 3⅝ in. bore and 4¼ in. stroke.

Models 243, 311C, 312, 351C and 352 are similar in general specifications to the 1934 series which they replace, but include in all cases the new hood and cab treatment, new instrument panel and power operated hydraulic brakes as standard equipment. All have the new "pressure-zone" ventilation. Twin scoops are located on each side just back of the radiator and take in fresh air at the high-pressure areas between the hood and fenders. Enclosed ducts lead into the cab at the front corners where inner sliding doors provide convenient control.







Top—Scoops built into the hood provide pressure zone ventilation. Center-Ducts carry the air into the cab through these openings near the floor board. Bottom—The gas tank filler is concealed behind this door in the corner of the cab. Left—Hercules engine for Model 220 develops 68 hp. at 2800 r.p.m.

In the heavy-duty field from 3 to 5 tons capacity, a new series of bevel and double reduction models is available.

MODELS 412B and DR and 512B and DR are powered by a new series of engines of increased size and ability. New precision-type bearings of heat-resistant lead-bronze are used throughout, and the counterbalanced crankshaft is specially hardened molybdenum alloy steel. The lubricating oil is continuously filtered and cooled by the built-in oil conditioner, which reduces the temperature of the oil approximately 40 deg. on long pulls at wide-open throttle. Exhaust valve seats are provided with inserts of special alloy.

These models carry a large 14-in. dry-plate clutch and a special five-speed transmission with easy shift helical-cut silent fourth and fifth speed gears, providing the equivalent of two high speed ranges for varying road and load conditions. A choice of extra-heavy bevel or double-reduction rear axles is provided, and hydraulic brakes are power operated by a large B-K vacuum booster. Radius rod drive is employed. Frames are exceptionally deep and rigid, of pressed steel in tapering design with a maximum depth of 10 in.

The 4-ton Model 412DR lists at $2,340 and the 5-ton Model 512DR at $2,690. For detailed specifications see page 54.

Beating Bandits With Armored Trucks

(CONTINUED FROM PAGE 32)

the pay envelopes. The money is then sealed in sacks and placed in the vault from which it is taken early Friday morning, stacked in trucks and dispersed. The vault is guarded at night by a group of men armed with shotguns.

Acting in the capacity as paymaster is perhaps a more interesting page of armored car service. Six trucks are used in pay-offs. The usual procedure, as on a recent construction job, is to drive the armored trucks to where the men are working and pay them off on the spot from the truck. Two guards stay outside, two inside. The workmen hand over an identification card which is passed to the guard inside the truck. After checking it, he passes out the pay envelope to the guard outside who again checks it and then hands it to its owner.

The actual delivery and collection routine is dramatic in conception. The armored truck cautiously draws up and a uniformed guard quickly steps out of the side door holding an ominous looking army Colt in his hand. He crosses the pavement and with his back to the wall makes a rapid but careful survey of the street. When he has satisfied himself that there are no suspicious looking characters about he signals, and a second guard steps out and stations himself on the opposite side of the door to the building. The guards' guns cover the truck and the doorway.

Now the messenger steps out of the truck carrying a heavy bag in one hand, a gun in the other. He moves quickly, makes straight for the doorway. Guards inside the truck, including the driver who never leaves the wheel, hold their guns ready, keep their eyes peeled. They guard the street from within the safety of their fortress on wheels, protected with ¾-in. bullet-proof glass and 3/16-in. steel plate. The guards enter the building, eventually emerge empty-handed, re-enter the truck and drive away.

It takes training to detect suspicious characters. Gangmen today dress spotlessly, look like prominent men. There is little about them that is characteristic of gangmen as they are generally thought of. Gang spys have to be near the scene. They might be dressed in dirty overalls pretending to be working near the scene of the delivery. They may be passing with tools, lumber, anything to make their presence look as natural as possible. Guards must look out for this.

Since 1922 the company has grown to a point where today it employs considerably more than 150 guards, drivers, tellers, etc., operates more than 50 trucks of which a varying number appear on the streets daily according to the requirements for the day.

Hundreds of customers in and about Philadelphia use armored car service. Armored trucks might normally make up to 150 stops daily, travel up to 200 or more miles a day, average 35,000 miles a year. An average day's work may mean from 2000 to 3000 stops for 30 to 40 trucks. Maintenance work is done in their own shop.

Deliveries of bonds and securities are made on long runs to New York and other large cities and the number of men in the regular detail is augmented by whatever number is considered necessary. On such runs trucks also carry extra guns, ammunition, etc.

Safety operation is based on the fact that the steel bodied trucks are virtually smash proof and that aside from a few jolts, the men are safe as long as they remain inside regardless of what happens; that an armed man inside is a match for any number of hold-up men; that only when taking guards unawares while they are outside of the trucks can any hold-up even hope to be successful. The idea is to try to prevent these possibilities.

"WE have never had a hold-up," says General Manager West, an ex-warrant officer in the marine corps himself who joined Captain Marsh shortly after the business was started. "But we are in for it, sometime, some day, and it's just that hold-up which we aim to prevent."

Most of the business is obtained through the work of solicitors employed by the company. A group of men serve as inspectors, watching the guards make deliveries or pick-ups for the purpose of correcting their faults. Reports are verbal.

The guards work hard. Coin is heavy. A thousand dollars in pennies weighs 680 lbs.; in nickels, 220 lbs.; in the standard payroll combination of nickels, dimes and quarters, 54 lbs.; in silver dollars, 58 lbs. If an armored car carried $10,000 in pennies the load would weigh 3½ tons. During the bank closing era the men worked their hardest, carried the most cash, never lost a penny.

At the time Captain Marsh conceived his idea bank hold-ups and robberies were in an up and coming state, were gaining prominence on the front pages. Today many robberies originate where protection by armored trucks is neglected. The greatest wealth is in the East, where the smallest percentage of robberies occur.

Low-Down On High Compression

(CONTINUED FROM PAGE 29)

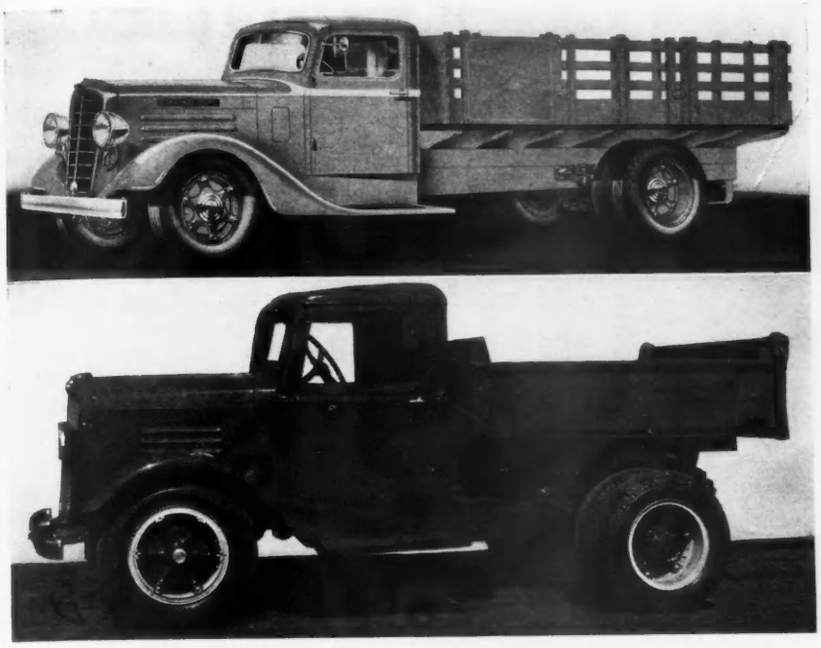
TEN to one is not a practical ratio but is used here as a illustration only. To some, these figures may lack value because the operators have no definite method of arriving at the correct ratio for any engine. Some of the operators discard theory entirely and proceed by simply milling small amounts off the head (in case of an L head engine) and then try it in service. This process is continued until they reach a point where it is just possible to make the engine detonate by giving it full throttle under full load. If the mechanic succeeds in reaching this point without mishap he has no need to know what ratio he should have because he already has it. An engine operating at highest efficiency should have a pinging noise when crowded on acceleration and when it is under a full load.

Many operators think this method is a little haphazard and will not use it because of the chances involved of taking too much off the head. For those operators who are interested in increasing compression ratios to take advantage of either improved regular grade or premium gasoline but who do not like to attempt the work without knowing the correct ratio to work to, there is reproduced on these pages a questionnaire. If this questionnaire is filled out in detail and mailed to COMMERCIAL CAR JOURNAL, a group of experts who have spent years in research work on this subject will study the information and recommend (without any cost to the operator) a correct ratio for the engine. Then by the fluid method it is possible to measure the point at which metal must be milled off the head.

Most of the overhead valve engines do not lend themselves readily to the milling off of heads because of the changes necessary to compensate on the valve actuating mechanism. A number of truck manufacturers supply pistons with increased compression distance to raise the compression ratio for overhead valve engined trucks. Replacement piston manufacturers in some cases supply pistons to do this job. If such pistons are installed at the regular overhaul period the stepping-up process can be accomplished at no extra cost.

It is possible that some experimenting with the spark timing will have to accompany the process of increasing the compression ratio and in some cases changing the carburetor jet sizes will add to the efficiency.

Hug Little Giants



Top—Hug's model 19A 1¾ to 5-ton from $1275. Bottom—Model 15 dump truck with full floating axle

THE HUG CO., Highland, Ill., has just announced a commercial series to supplement its roadbuilder line. The new line consists of models 15, 19, 23, 42, and 43. They are offered in straight trucks, dump trucks and tractors. They cover the range of 1¾-ton to 4-ton.

Outstanding among these are the models 15 and 19. They are offered in straight trucks, dump trucks and tractors. The model 15 has a Waukesha 6BL engine, 3½ in. x 4¼ and 245 cu. in. displacement. It has hydraulic brakes and a single reduction rear axle of the full floating type. Wheelbases are from 118 in. to 156 in. with 5.50 x 20 tires in the front and 6.50 x 20 duals rear. The base price is $785.

The model 19 is rated as 1¾-ton to 5-ton and carries a base price of $1275. It has a 6BK Waukesha engine 3¾ x 4¼ in., 282 cu. in. piston displacement and a five speed transmission. Four wheel brakes are standard. It has a full floating single reduction axle. Tire size is 7.00 x 20. Wheelbases the same as model 15.

All of the new lines have the Hug front axle rocker action. This construction is to absorb twists and strains and to compensate for uneven road conditions. It prevents twisting of the hood, cab and radiator and in addition prevents bending of the frame members.

Fruehauf Dump Trailer

WITH the dump body operating on a direct drive through the fifth wheel, this new coal delivery semi-trailer hauls 8-ton loads behind a light 1½-ton tractor.

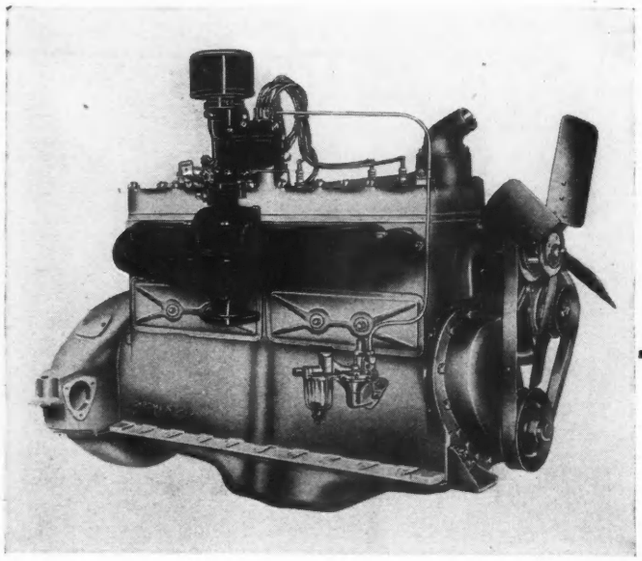
The tractor can be coupled to an ordinary trailer as well, since the new power fifth wheel, as designed by the Fruehauf Trailer Co. is interchangeable with all standard types. This means that operators can haul other products with the same power unit. The fifth wheel can be used to operate more than the one type of power equipment. It will work winches or fuel pumps on oil trailers equally as well.

Complicated mechanism and hose connections for driving the hoist are entirely eliminated by the new power fifth wheel and the unit can be coupled and uncoupled as quickly as any tractor-trailer combination.

The dumping operation is simple. From the power take-off on the tractor a shaft runs to a transmission mounted under the lower fifth wheel where a gear meshes with a gear on the bottom of the trailer king-pin. A steel shaft through this hollow king-pin transmits the power to a second transmission above, and another shaft then carries the drive to the hydraulic pump which operates the hoist.

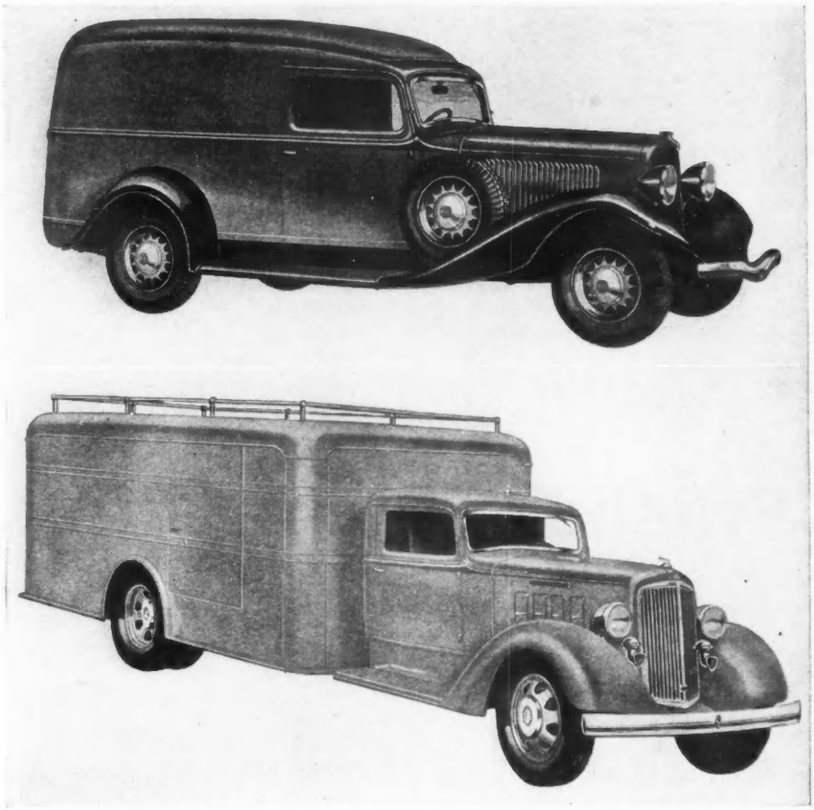
This entire action is positive regardless of the relative position of tractor and trailer and is controlled by two levers, one in the cab to raise the body and another at the front of the trailer chassis to lower the body. The hoist drive mechanism automatically couples and uncouples at the fifth wheel when the trailer is connected and disconnected.

Fruehauf's dump mechanism operates through the fifth-wheel



Reo Hops in

6-cylinder powerplant of the new Reo ½-ton job develops 80 hp. at 3200 r.p.m.



Top—½-ton addition to the Reo family lists at $495 for the chassis. Bottom—1½-ton model with 4-speed transmission lists at $595 for the chassis

A NEW ½-ton commercial unit of high performance characteristics and a refined and improved 1½-ton chassis are announced by the Reo Motor Car Co. The former has a list price of $495 for the chassis, $695 for the panel delivery, and the latter a price of $595 for the chassis.

Both types are new in appearance with emphasis on "streamlining," they have roomier interiors for the driver, and are equipped with six cylinder 3⅛ in. by 5 in. engines of 230 cu. in. displacement. The engine in the ½-ton is rated at 80 hp. at 3200 r.p.m., while the 1½-ton model is governed at 2800 r.p.m. at which speed it develops 68 hp.

Transmissions are new for both models. The ½-ton has a helical gear silent type of transmission for countershaft and second speed, with synchronizer mechanism for ease of engagement of both of these speeds.

In the 1½-ton truck the transmission is of the 4-speed type and has helical gears for countershaft drive as well as for quieter running in all speeds. In this transmission which is of new design, and Reo built the countershaft is carried on Timken taper roller bearings, taking the thrust from the helical gears as well as the radial load.

REAR axles of the 1½-ton model have been redesigned and are stronger though lighter than formerly. Capacity has also been increased in the frame and springs of this model, which has a gross rating of 10,500 lbs., and standard wheelbase of 139 in.

The ½-ton is on a standard wheelbase of 118 in., with X-frame and is available in the usual standard body types.

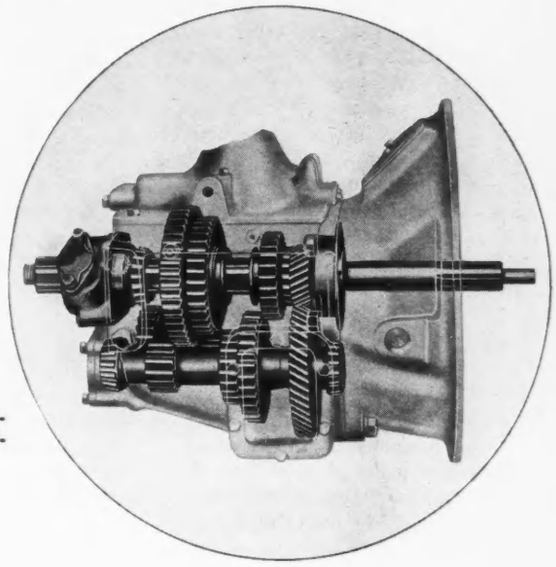
Appearance of both trucks is distinctive, with their deep sloping V shaped radiator grilles, skirted fenders concealing the chassis, and sloping windshields with rounded headers. The ½-ton has vertical and the 1½-ton model sloping hood louvres. Both models are also fitted with tilt-beam headlights.

Engines in both models carry all the usual Reo features, such as 4-ring camground lo-ex aluminum alloy pistons, seven bearing crankshafts (2⅝ in. diameter) and counterbalanced, chrome nickel alloy iron cylinder blocks and inserted alloy steel exhaust valve seats. Vibration and noise insulation is improved through engine supports of live rubber, air cushioned.

All transmission gears and shafts, as well as axle shafts in both models

with Hopped-up Half-Ton

Has an 80 hp. Engine and Hydraulic Brakes and Lists at $495; New 1½-Ton Also Announced Lists at $595



4-speed heavy-duty transmission for 1½ton Speedwagon

are made of nickel or nickel-molybdenum alloy steels, heat-treated. Both models have cam and lever steering gears, and hydraulic four wheel brakes operating in centrifuse drums. Transmission brakes provided for parking on both models are of the band type, 2 in. wide, with 6 in. drums on the ½-ton and 8 in. on the 1½-ton unit.

Rear axle ratio on the ½-ton model is 4.3 to 1. The 1½-ton unit has standard ratios of 5.28, 5.83, and 6.6 to 1. The axle in this case being also of the full-floating type with spiral bevel gears and straddle mounted pinion.

Standard tire equipment on the ½-ton model is 6.25 x 16 in. front and rear, these sizes being of the semi-balloon class. 6.00 x 20 in. tires and standard front and rear on the 1½-ton with other sizes and combinations, including dual rears available at extra cost.

A Copper-Alloy Head

Federal-Mogul Develops New High Compression Head Giving Increased Power and Fuel Economy

THE Federal-Mogul Corp., Detroit, Mich., has entered the cylinder head field with an entirely new type of copper-alloy cylinder head.

This decision was reached after practical tests showed that the relatively high thermal conductivity of copper and its alloys would tend to minimize the formation of local hot spots, with resultant advantages in improved engine performance, economy of operation and maintenance.

Tests were conducted at the Battelle Memorial Institute, Columbus, with a single-cylinder engine alternately equipped with a cast iron, an aluminum-alloy and the copper-alloy cylinder head, to discover whether the copper-alloys had any superiorities or deficiencies compared with the others, irrespective of combustion chamber shape and compression ratio.

Results with the three types of heads under identical operating conditions showed a definite improvement by the copper-alloy head over the others in specific fuel consumption.

ON 100-hour test runs for carbon formation—25 runs of four hours each, allowing the engine to cool between runs—the results showed carbon accumulation in the copper head to be approximately 1/3 of that in the cast iron head and half of that in the aluminum alloy head. In fuel economy, the copper head led, the aluminum head was second, and the cast iron head third. Better combustion was indicated by the percentage of CO_2 in exhaust gas, which was: copper, 8.8 per cent; aluminum, 6.3 per cent; and cast iron, 5.5 per cent. Engine performance was practically unchanged by carbon formation in the 100 hours running with the copper head, while with the aluminum and cast iron heads, detonation and a consequent loss of power and increased fuel consumption were noted.

Other tests covered a number of engines of from one to eight cylinders and ranging from high speed to heavy duty. The results were consistently favorable. In the marine field, where full-throttle operation is common most of the time, these results were of particular interest. Increased compression ratios with increased power output and greater boat speeds were obtained in all cases. In economy tests under identical operating conditions, the copper-alloy cylinder heads showed up to 19 per cent greater mileage.

260 Million Pounds of Freight

(CONTINUED FROM PAGE 15)

of 325,000 miles per month. In covering this mileage the Adley trucks manage to transport 5,000,000 lb. of freight from one terminal to the other each week. About 300 employees look to the company for a pay envelope each Saturday. So you may get the idea that a few demands are made on Mickey, too.

Adley terminals dot the map of New England from Springfield, Mass., to New York with terminal arrangements at Philadelphia and Boston. Mechanics are on duty at each of the important terminals to take care of running repairs and preventive maintenance.

But to get back to the central shop in New Haven where Mr. Morgan presides, and to the spring routine in particular, the company is almost standardized on one make of truck, but the capacities and yearly models of these trucks varied sufficiently to make the types of springs necessary for service a real problem. A long tedious job of standardizing springs was begun. It was two years before the shop reached what was considered a satisfactory solution. Two years of trying different type springs and then if they were satisfactory in service working on an interchangeability program which would make one type of springs serve in as many models as possible. The solution in detail is that a stock of 20 springs provides a pair of springs for every location in every truck. In preparing for better emergency spring service the shop found that it had reduced the frequency with which spring breakage occurred and consequently reduced the cost.

Bodies are no mystery to this shop. Lumber is bought in the rough from the saw mill and the body iron is bought in bulk. From this raw product bodies are built and kept in repair. All the body irons are forged by Adley mechanics and all the lumber is finished and carpentered into bodies of their own design. Even the canvas is bought as such and an Adley craftsman makes and maintains all of the tarpaulins. A novel scheme to make the trucks more visible from the rear at night is used. The part of the tarpaulin that hangs from the top rear of the sides to the tail gate is painted in black and white checks about 6 in. square. It gives about the same easy visibility as the painting done by various states on narrow bridges and under passes.

When we asked the busy Mr. Morgan as he walked from one job to the next about painting, he said he did not know much about paint. He says he has a good painter and does not have to know much about it.

ELECTRICAL repairs and the rebuilding of starters, generators, etc., are done in the shops by an electrician. For some time radiator repairs went out to a small radiator repair shop. After studying the monthly bills for a long enough period to get a good perspective the company hired the proprietor of the shop on a salary. While he does not have enough radiator work to keep him busy in the fleet shop the radiators get repaired for less money than they did previously and the man is available for other purposes and in several capacities he has become very useful.

After quite some experimenting the shop has come to believe that they cannot afford to have their trucks lubricated on the outside. On the trucks that do not get into the central shop as often as lubrication was required there is constant trouble due to lack of lubrication. Being open minded about the proposition and desiring nothing more than adequate lubrication at a reasonable price the trucks were sent to lubrication stations in convenient communities. When the work was not satisfactory they were sent to other stations in the same neighborhood.

Pretty soon all the stations which

(TURN TO PAGE 55, PLEASE)

New Truck Registrations by Makes by Months

	Autocar	Brockway	Chevrolet	Diamond T	Dodge	Federal	Ford	G. M. C.	International	Mack	Reo	Sterling	Stewart	Studebaker	White-Indiana	Miscellaneous	Total
January.....1934	79	91	8,917	406	2,581	120	6,650	555	2,284	161	289	9	61	98	284	318	22,903
January.....1933	47	39	4,884	205	360	52	3,734	344	983	79	137	12	29	134	287	383	11,709
February.....1934	58	81	10,718	420	2,723	121	6,459	453	2,150	144	339	14	60	109	357	270	24,476
February.....1933	41	42	4,645	174	348	58	2,185	271	1,126	62	151	8	31	152	180	233	9,707
March.....1934	64	117	15,112	501	4,154	170	8,642	717	2,841	145	461	10	67	126	452	315	33,894
March.....1933	45	51	4,749	202	489	54	2,037	318	1,201	55	132	5	32	101	174	289	9,934
April.....1934	88	104	15,050	534	4,367	178	13,167	839	2,729	206	527	4	90	123	558	318	38,882
April.....1933	76	97	7,299	362	870	103	4,556	644	2,021	137	216	12	40	180	201	487	17,301
May.....1934	146	117	14,148	508	4,441	186	14,390	1,031	2,849	212	578	10	103	193	544	375	39,831
May.....1933	106	88	8,649	375	1,332	138	5,665	647	2,463	152	290	7	70	205	218	520	20,925
June.....1934	95	108	12,981	481	3,729	196	12,205	884	2,435	154	504	9	67	133	447	350	34,778
June.....1933	113	66	10,191	363	1,936	99	6,080	583	2,482	149	278	7	65	184	219	439	23,254
July.....1934	99	147	14,704	457	4,224	182	12,492	951	2,548	202	416	17	67	156	396	432	37,490
July.....1933	137	107	14,613	440	2,582	171	7,058	757	3,007	217	381	18	74	198	303	579	30,642
August.....1934	61	107	15,790	508	4,754	162	14,055	1,033	2,809	143	439	15	56	138	337	383	40,790
August.....1933	127	82	11,455	432	4,563	134	6,840	667	2,981	143	351	3	106	214	241	460	28,799
September.....1934	118	74	15,159	420	4,086	158	12,250	1,240	2,538	103	369	3	31	153	238	285	37,225
September.....1933	105	103	14,026	473	4,316	134	7,088	592	3,137	135	281	9	70	166	194	440	31,269
9 Months.....1934	808	946	122,579	4,235	35,059	1,473	100,300	7,703	23,183	1,470	3,922	91	602	1,229	3,613	3,046	310,259
9 Months.....1933	797	675	80,511	3,026	16,796	943	45,243	4,823	19,401	1,129	2,217	81	517	1,534	2,017	3,830	183,540
9 Months.....%Gain	1	40	52	40	109	56	121	60	19	30	77	12	16	−20	79	−20	60

— = decrease

Ward LaFrance Diesel

A LINE of Diesel-powered tractors and trucks, comprising a tractor, a four-wheel truck and a six-wheel truck, and powered with either four or six-cylinder engines, is being built by the Ward LaFrance Co., Elmira, N. Y. Cummins engines are used. The cooling system with heat control, fuel system and accelerating device were specially engineered for the Diesel job.

The machine representative of the whole line, as far as mechanical details go, is the 6-cylinder diesel tractor Model 75CW. It has a 164-in. wheelbase and an overall length of 222½ in., and it can be turned in a radius of 32½ ft. Standard trucks come with pressed steel frames, while duralumin frames are furnished optionally at extra cost. With pressed steel frame the 75CW tractor chassis weighs 10,700 lb. and with a duralumin frame, 9,700 lb. The cab adds 550 lb.

The 6-cylinder Cummins engine has a 4⅞ in. bore and a 6 in. stroke, which makes its displacement 672 cu. in. It develops a torque of 420 lb./ft., throughout the speed range of 450 to 1,200 r.p.m. A Spicer 5-speed transmission is fitted, with helical gears and a nominal torque rating of 450 lb./ft. at 1,000 r.p.m. The clutch is a double plate Spicer, 13 in. in diameter. Spicer universal joints of the needle-bearing type are used.

The front axle is a Timken with a track of 71 in. Front-wheel brakes are 17¼ x 3 in. and are provided with Timken slack adjusters. The rear axle is the Timken double-reduction type, with herringbone gears. Rear-wheel brakes measure 17¼ x 5½ in., and are provided with Westinghouse slack adjusters. Budd wheels of the ventilated type are standard. The steering gear is a Ross cam-and-lever type, with roller bearing mounting.

Radiator shutters are regular equipment. Two fuel tanks under the side splashers have a combined capacity of 65 gal.

With a standard rear axle ratio of 6.86 to 1 and the engine governed to 1,800 r.p.m., the tractor has a minimum speed of 30 m.p.h. in direct drive and 45 m.p.h. in over-drive. Designed to haul gross loads up to 50,000 lb.

Ward LaFrance tractor Model 75CW with 6-cylinder Diesel engine and (below) its duralumin frame

GE Refrigerated Truck

Power take-off and drive for this GE refrigerated unit is shown at right

THE features of the new 1935 GE refrigerated truck body include all-steel, welded body construction, specially designed power take-off drive with over-running clutch embodied in driving pulley, Thermocraft insulation —a GE product similar to that used in General Electric's domestic refrigerators—sealed in a steel insulation compartment to protect it against atmospheric moisture, heat-exchanger which eliminates frosting of the suction line and affords maximum evaporator efficiency, and unique coil-free interior of refrigerated compartment.

The bodies available in three sizes are intended for routes which have a running time of 40 per cent or more. The cruising radius is unlimited, permitting the truck to operate 24 hours a day if desirable, because the electric system provides full refrigerating capacity while on the road. It is not necessary to spend a certain portion of the day operating from central station power. The operating cost averages approximately five kilowatt hours for a night lay-over, and less than one additional gallon of gasoline a day on normal 75 to 100-mile routes.

NEWS

Highway Users Rap Regulation

See President to Air Views Against More Truck Laws

Proposed legislation for the coordination of transportation agencies was the subject of a conference at the White House last month when a committee representing highway users, farmers, shippers, truck and bus operators advised the President against further regulation of interstate motor transport at this time.

The committee, speaking for the National Highway Users Conference, advanced a brief of 10 reasons why such regulation at this time is undesirable. A memorandum left with the President stressed the fact that "truck movements are in a different category from bus operators. They cannot be considered as a transportation system, consisting as they do of millions of separate, unrelated daily operations by common carriers, contact carriers and private carriers. Manifestly, these differences should be considered before the application of a rigid formula is attempted."

Mack Extends Reo Sales

C. A. Triphagen, Reo sales manager, announces completion of arrangements with Mack International Truck under which Mack will sell and service Reo Speedwagons and commercial cars in the following cities: Brooklyn, Louisville, Tulsa, Omaha, New Orleans, Memphis, Akron, Erie, Baltimore, Chattanooga and Seattle.

The arrangement will not affect Reo dealers in these communities except insofar as Mack dealers will be selling Reo trucks in competition.

Federal Gets a Million

An order for 399 trucks, cabs and bodies totaling close to a million dollars has been awarded by the War Department to the Federal Motor Truck Co.

These trucks, all of 2½-ton capacity, will be of special 4-wheel drive design, built to government specifications. The standard tire equipment is to be pneumatic single front and dual rear, but provision is made through the use of special design front hubs for the installation of dual front tires in case of necessity.

Labor Board Approved

NRA has approved the temporary membership and the plan of procedure for the trucking industry's National Industrial Relations Board.

Banks Heads Truck Club

Charles E. Banks has been elected president of the Motor Truck Club of Kentucky by the newly-elected directors of the organization. Other officers are: Vice-president, M. R. Buhner; secretary, H. C. Kelting, and treasurer, C. H. Gutermuth.

Cost Formula Approved

The Cost Formula for the Trucking Industry, by which code authorities will measure the sufficiency of members' rates, has been approved by the NIRB. The formula is to be effective for 90 days, beginning last Oct. 16, and the Code Authority is to report in 60 days any changes or modifications thought advisable.

With approval of the Cost Formula, the final general provisions of the trucking code were set up. Henceforth efforts of the Federal and State officials may be directed toward the task of obtaining compliance.

Buick Ships by Truck

Buick returned to truck shipments from Flint with the settlement of a truckers' strike which had been in progress recently.

Stewart Takes New Quarters

Stewart Motor Trucks, Inc., has moved from old quarters on Northern Boulevard, Long Island City, N. Y., to 45 Queens Boulevard, that city. The new building will be used for retail sales and service.

Dealer Changes Name

Berkshire-Nash, Inc., has changed its name to Donovan-Roberts, Inc., and will continue to handle International trucks as well as the Nash and Packard lines.

Klinedinst New Timken V-P

L. M. Klinedinst has been elected to the board of the Timken Roller Bearing Co. and promoted to vice-president in charge of sales. T. V. Buckwalter is the new vice-president of the Timken Steel & Tube Co.

More Trucks from Fargo

The Fargo Motor Corp., Chrysler subsidiary, has received the second order within a month for trucks from the War Department. The latest order calls for 153 trucks at a cost of $110,414.

Bohn Aluminum Process

Discovery of a new process for the manufacture of aluminum which will tremendously increase its use in the automotive field is reported by the Bohn Aluminum & Brass Corp., Detroit. It is expected the development will result in a $15,000,000 expansion project by the company in Detroit.

New Chevrolet Shift

Chevrolet Motor Co. has made the following transfers and promotions: W. J. Graveson, R. M. Campbell and L. M. Cary as managers of the Detroit, Cleveland and Harrisburg zones respectively; F. W. Williams as acting zone manager at Pittsburgh; G. R. Weeks, zone manager at Tarrytown; E. A. Nimnicht and C. J. Peters as zone managers at Baltimore and Portland respectively.

Warn Against 1935 Legislation

Truckmen Told of Legislators' Proposed Objectives

The S.A.E. Regional Transportation and Maintenance meeting was held in Newark early this month with several hundred transportation men present.

Speakers at the opening session were Roy F. Britton of the National Highway Users Conference and Gen. H. B. Markham, director of the American Petroleum Institute. Both discussed highway taxation and regulation, and warned the industry to be prepared for attempts to place greater burdens on highway transportation when 44 legislatures meet next year. Some of the objectives of legislative sessions will be: Further weight and dimension reductions of commercial vehicles; establishment of ports of entry in most States such as Kansas now has; provision of authority for railroads to buy up highway transport lines; reclassification of motor vehicles for purposes of taxation in accordance with weights and measurements; maximum speed and minimum power plant limits and compulsory installation of numerous appliances in the name of public safety; increased gasoline taxes and more diversions; requirements that from 30 to 50 per cent of gasoline taxes collected in each State be allotted to the municipalities for street purposes.

Service Show in Cleveland

The Automobile Service Industries Show and Conventions of the Motor and Equipment Mfg. Association, National Standard Parts Association, Motor and Equipment Wholesalers Association and International Automotive Booster Club will be held this month on the 19th to 23rd at Cleveland in the Exposition Hall of the public auditorium.

Templin Takes New Post

E. W. Templin, formerly chief engineer of the Six-Wheel Co., Philadelphia, has been appointed junior engineer for the Los Angeles Department of Water and Power. He is serving with the general plant division, which has control of operation and maintenance of a fleet of 1300 trucks.

Rolph Heads Battery Ass'n

S. W. Rolph, president of Willard Battery Co., was elected president of the National Battery Mfg. Association at their convention in Chicago last month.

Yates-American to Make Radiators

Yates-American Machine Co., Beloit, Wis., has entered the automobile radiator business and has started production for automobiles, trucks, tractors, etc.

COMMERCIAL CAR JOURNAL'S

TRUCK SPECIFICATIONS TABLE

The Commercial Car Journal's Truck Specifications Table is brought up to date in each issue from data supplied monthly by truck manufacturers

KEY TO ABBREVIATIONS AND REFERENCE MARKS

GENERAL

Chassis Price—Chassis price quoted applies to the standard wheelbase and specifications listed. All prices are F.O.B. factory.
***—List price not yet established. Ready next issue.
Tonnage Rating—Where a spread of ratings is given the maximum ratings are for ideal operating conditions and the minimum for extremely difficult conditions; the ranges between are for varying operating conditions.
Gross Vehicle Weight—Is chassis weight, plus body and cab, plus payload. Gross vehicle weight given for a model is based on maximum recommended tire size and not on tires listed as standard equipment.
Chassis Weight Stripped—Includes gas, oil and water and all things included in chassis price. Does not include the weight of cab.
Maximum Brake H. P. at Given R.P.M.—Is actual dynamometer reading without accessories.
Tractors—Unless given the designation N (meaning not available as tractor), all standard models may be assumed to be available as tractors.
(A) All Torque and Brake Horsepower values listed are based on engine outputs with all Standard Equipment Accessories running and are the same values obtaining with the truck on the road in actual operation.
(N) Not available as tractor.
(T) This designation accompanying a model number indicates vehicle is specifically designed for tractor use only.
c. o. e.—Cab-over-engine design.
(3) Corbitt—Larger engines and corresponding auxiliary units provided on all models at extra cost.
(4) Day Elder—Model 75—1½ ton—same specifications except price—$945, and larger tire size—B6.00/20 front and DB6.00/20 rear.
(5) Dodge—F-61 available as special tractor truck with 146-inch wheelbase with model designation of F-60, at $2645. K-61 available as special tractor truck with 146-inch wheelbase with model designation of K-60, at ***.
(5a) Dodge—Model H20, ¾-1 ton, gross vehicle weight 6,000 lb., price $502, has same specifications as H30 except tires which are 7.50/17 and lighter rear springs.
(6) General Motors—Models T-18 to T-61 inclusive are also available for export only as coach chassis. Double reduction axles optional at extra cost in Models T-43, T-43T, T-51, T73H and T-74. Worm type axles optional at price deduction in Models T-61, T-75T, T-75, T-75H and T-83. Chassis prices and weights on all cab-over-engine models include the cab. A complete line of superheavy duty models designated T-85 series (4-wheel) and T-95 series (6-wheel) custom-built to exactly meet customer's requirements are available with a range of axles, wheelbases, engines, transmissions, etc, and prices will be quoted upon application.
Gramm—Larger engines and corresponding auxiliary units provided on all models at extra cost when type of service demands. Wheelbases and body mounting dimensions may change to suit special requirements. Double reduction axles available on all models except AX and BX.
Gross weight indicated for each model in the table is the straight rating. Series CXH is supplied with Hercules JXB engine in Model CXHB and Hercules JXC in Model CXHC.
(7) Grasa Premier—Eight cylinder engines available on following models: 835 with Lyc. GU at $1515 list; 865 with Lyc. HF at $4230; 875 with Lyc. AE at $5400.
(8) International Harvester—A-1, ¾ ton, same as A-2 except less spring leaves and smaller tires.
(9) Le Moon—Model 600 available with Lyc. AEC at same cost. Models 701 and 801 available with Waukesha 6SRL at same cost.
(10) Sterling—Rocker arm used in place of springs
(D) Sterling—Diesel Equipped.
†Reo—Model 1D is the longer wheelbase edition of Model 1B. The frame dimension is 7x2¾x¼. It is furnished at extra cost.
††Reo—2J, 2K same as 2H except 166 in. wheelbase and price of $1695.
††Reo—3J same as 3H except wheelbase of 170 in. and price of $2085; 3K same as 3H except 185 in. wheelbase and price of $2155. 3M same as 3H except 205 in. wheelbase.
(11) Studebaker—S-2 in 141 in. and 165 in. wheelbases has 6½ in. frame depth.
(12) White—Each model shown is furnished with different specifications for different tonnage ratings.
*—Factory governed speed 2400 r.p.m.
(12a) White—Special prices for each installation.
(13) Marmon-Herrington—Available with Hercules Diesel engine. Price on application.
(14) Ford—Rear axle ratios 5.14 and 6.6 optional on 1½-ton trucks.
(15) Mack—Chassis price and weight include cab
(16) Biederman—Will furnish Continental, Hercules, Waukesha and Lycoming engines at the buyer's option.
(17) Moreland—All Moreland models available with Waukesha engines and as six-wheelers with dead axle.
(18) Walker—Frame lengths may be changed, within limits, to suit individual requirements, at no additional cost.

MAKES—ALL

AB—American Bosch.
A LaF—American La France.
AL—Auto Lite.
B—Bendix.
BB—Borg & Beck.
BL—Brown-Lipe.
BO—Bendix front, Own rear.
Blo—Blood.
Bu or Bud—Buda.
BW—Borg Warner
BWs—Bendix front, Westinghouse rear.
C or Col—Columbia.
Car—Carter.
Ch—Chicago.
CI—Ignition by compression.
Cl or Cla—Clark.
Cle—Cleveland.
Co—Covert (transmission).
Co—Covert (clutch)
Con—Continental.
Cot—Cotta Gear.
Cum—Cummins-Diesel
Det—Detroit Lubricator.
DG—Detroit Gear and Machine.
DR—Delco Remy.
Eat—Eaton.
Ei—Eisemann.
En—Governor built in engine
EV—Electro-Vac (gov.) Pierce.
Fe—Fedders.
Fu—Fuller.
Ge—Gemmer.
GO—G. & O.
Ha—Handy (governor).
Ha—Hannum (steering gear).
HaS—American Car & Fdry.
Her—Hercules.
Hr—Harrison.
HS—Merchant & Evans (clutch).
HS—American Car & Fdry. (governor).
Jac—Saginaw.
Jo—Jones.
KP—Handy.
L—Lockheed.
Li—Lipe, W. C.
LN—Leece Neville.
Lo—Long.
LO—Lockheed front, Own rear
LW—Lockheed front, Wisconsin rear.
Lyc—Lycoming.
Mc—McCord.
Ma—Marvel.
ME—Merchant & Evans.
MM—Mechanics Mach.
Mo—Modine (radiator).
Mo—Monarch (governor).
My—Mallory.
NE—North East.
No—Not supplied.
ns—No Standard.
O or Ow—Own.
Op or Opt—Optional.
Pe—Pierce (governor).
Pe—Perfex (radiator).
PS—Peters & Snead.
RB—Robt. Bosch.
Ro—Rockford.
Ros—Ross.
Sc—Scintilla.
Sch—Wheeler-Schebler.
Shu—Shuler.
SpB—Spicer and Blood
Spi—Spicer.
Ste or St—Sterling.
Sto.-Bat.—Storage Battery
Str—Stromberg.
Til—Tillotson.
T or Tim—Timken.
TWH—Timken Wisconsin Herrington
WG—Warner Gear.
Wa—Waukesha (governor).
Wau—Waukesha.
W or Wis—Wisconsin.
Ws—Westinghouse.
Yo—Young.
Zen—Zenith.

BRAKES—SERVICE

Location

2—Two Wheels, rear only.
2/4—Two-wheel brakes effective on all four wheels through driveshaft.
4/6—Brakes on four rear wheels effective on all wheels through driveshaft.
T/4—Brake on transmission effective on all four wheels through driveshaft.
4—Four Wheels, front and rear.
4r—Four Wheels, rear only.
6—Six Wheels, front and rear.
J—Jackshaft.
P—Propeller shaft.

Type

I—Internal.
X—External.

Operation

A—Air.
D—Hydraulic and mechanical.
H—Hydraulic.
M—Mechanical.
V—Vacuum.

BRAKES—HAND

Location

C—Center of double propeller shaft.
2—Rear wheels.
4—Four wheels.
R—Worm or bevel gearshaft.
T—Transmission.
F—Driveshaft.

Type

D—Tru-Stop disk.
I—Internal.
X—External.

BRAKE DRUMS

Material

a—Cast alloy iron.
A—American Car Fdry.
C—Centrifuse.
D—Dayton.
E—Ermalite.
G—Gunite.
H—Hunt Spiller.
c—Cast iron.
p—Pressed steel.
P—Pressed steel.
s—Cast steel.
(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

CLUTCH

Type

D—Multiple disk.
dp—Double plate.
O—Plate in oil.
P—Single plate.

ENGINE

Valve Arrangement

F—Inlet valve in head; exhaust valve at side.
H—In head.
L—"L" head, valves at side.
T—Inlet and exhaust on opposite sides.

Camshaft Drive

C—Chain.
G—Gear.

Piston Material

A—Aluminum alloy.
B—Semi-steel.
C—Cast iron.
N—Nickel iron.
S—Aluminum alloy with strut.

Main Bearings

r—Rear main bearing.

Oiling System

CC—Pressure to main, connecting rod and camshaft bearings.
FP—Pressure to main, connecting rod camshaft bearings and piston pins.
PC—Pressure to mains and connecting rod bearings.
PG—Pump, gravity and splash.
PS—Pressure with splash.

FRAME

Type

I—"I" Beam.
C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center.
Tf—Tapered front.
X—x-Braced.

FUEL SYSTEM

Fuel Feed

E—Electric pump.
G—Gravity.
M—Mechanical pump.
P—Pressure.
V—Vacuum.
B—Bosch.
C—Cummins.

REAR AXLE

Final Drive and Type

B—Bevel.
C—Chain.
D—Dead.
F—Full-floating.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
w/2—Worm or Double Reduction Optional.
½—Semi-floating.
¾—Three-quarter floating.

Drive and Torque

A—Radius Rods and Torque Arm.
H—Hotchkiss. (springs)
R—Radius Rods
T—Torque Arm.
U—Torque Tube.

SPRINGS

Auxiliary Type

½—Semi-elliptic above or below main springs.
¼—Quarter elliptic.
C—Coil spring.
N—No.
O—Optional.

TIRES

B—Balloon.
DB—Dual Balloons.
P—High Pressure Pneumatics.
DP—Dual High Pressure Pneumatics.
S—Solids.
DS—Dual Solids.
°—Pneumatics at extra cost.

TRANSMISSION

Location

A—Amidships.
J—Unit with jackshaft.
U—Unit with engine.

Auxiliary Location

No—Not furnished.
O2—2 speed axle unit optional at extra cost.
Op—Optional at extra cost.
A—Amidships.
R—Rear of amidships main transmission.
U—Unit with engine.

WHEELS DRIVEN

2C—Center pair of rear wheels
2R—Rear pair of rear wheels.
4F—Front and center pair of rear wheels.
4R—Four rear wheels.
6—Six wheels.

Specifications Are for New Models Announced This Month—A Complete

Line Number	MAKE AND MODEL	GENERAL (See Keynote) Tonnage Rating	Chassis Price	Standard Wheelbase	Max. W. B. Furnished	Gross Vehicle Weight	Chassis Wt. (Stripped)	TIRE SIZE Front	Rear	ENGINE Make and Model	No. of Cylinders, Bore and Stroke	TRANSMISSION Make and Model	Location, Forward Speeds	Aux. Location and Speeds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	GEAR RATIOS In High	In Low	FRAME Side Rail Dimensions	Type
1	Brockway	125 2½–3	2100	156	200	15000	5700	B7.50/20	DB7.50/20	Con 31B	6–3⅞x4½	BL 234	U 4	No	Col 5500A7	SF	H	5.83	37.37	7½x3x¼	T
2	Diamond T	211A 1½	535	135	168	10000	3400	B6.00/20	B6.00/20	Her JXA	6–3⅜x4¼	WG T9	U 4	No	Cla B373E	SF	H	Opt	....	7x2 13/16 x 5/16	T
3		220 1½–2	666	135	168	11500	3600	B6.00/20	B6.00/20	Her JXB	6–3⅜x4¼	WG T9	U 4	No	Cla B8000	SF	H	Opt	Opt	7x2 13/16 x 5/16	T
4		227 1½–2	745	135	168	11500	3600	B6.00/20	DB6.00/20	Her JXA	6–3⅜x4¼	WG T9	U 4	No	Cla B410	SF	H	Opt	Opt	7x2 13/16 x 5/16	T
5		243 1½–2	895	137	179	12000	4000	B6.00/20	DB6.00/20	Her JXA	6–3⅜x4¼	WG T9	U 4	No	Cla B473	SF	H	Opt	Opt	8x3x 11/16	T
6		311C 2	1095	155	179	13000	4600	B6.50/20	DB6.50/20	Her JXB	6–3⅜x4¼	WG T9	U 4	No	Cla B613	SF	H	Opt	Opt	8x3x 11/16	T
7		312 2–2½	1195	155	179	14000	4600	B6.50/20	DB6.50/20	Her JXC	6–3¾x4¼	Cla 185F	U 4	No	Cla B613	SF	H	Opt	Opt	8x3x 11/16	T
8		351C 2½	1395	155	179	15000	5125	B7.00/20	DB7.00/20	Her JXC	6–3¾x4¼	Cla 116A	U 5	No	Cla B642	SF	H	Opt	Opt	8x3x 11/16	T
9		352 2½–3	1495	155	179	16000	5125	B7.00/20	DB7.00/20	Her JXD	6–4x4¼	Cla 116A	U 5	No	Cla B642	SF	H	Opt	Opt	8x3x 11/16	T
10		412B 3	2040	189	225	17000	6200	B7.50/20	DB7.50/20	Her WXLC	6–4x4¾	Cla R909	U 5	No	Cla B642	SF	R	Opt	Opt	10x3x1¼	T
11		512B 4	2340	189	225	18000	6800	B8.25/20	DB8.25/20	Her WXLC3	6–4½x4¾	Cla R909	U 5	No	Tim 58205H	SF	R	Opt	Opt	10x3x1¼	T
12		412DR 4	2340	189	225	18000	6800	B7.50/20	DB7.50/20	Her WXLC3	6–4½x4¾	Cla R909	U 5	No	Wis 72000	2F	R	Opt	Opt	10x3x1¼	T
13		512DR 5	2690	189	225	20000	7400	B8.25/20	DB8.25/20	Her WXLC3	6–4½x4¾	Cla R909	U 5	No	Wis 1337H	2F	R	Opt	Opt	10x3x1¼	T
14	Reo	S-4P ½	495	117½	117½	4200	.....	6.25/16	6.25/16	Own	6–3½x5	WG T83	U 3	No	Own	S/2	H	4.3:1 4.6:1	2.819	6x2½x1/16	C
15	Sterling	FB40 1½–2	1135	142	162	11000	3450	B6.50/20	DB6.50/20	Con 25A	6–3¾x4	WG T9	U 4	No	Own	SF	H	5.66	36.2	6x2⅝x 3/16	C
16		FB50 De L 2–2½	1795	174	204	13000	4900	B7.00/20	DB7.00/20	Wau 6BK	6–3¾x4¼	WG T9	U 4	No	Own	SF	R	6.60	42.2	10x3¼x¼	L
17		FB60 De L 2½–3	2040	174	204	15000	5150	B7.00/20	DB7.00/20	Wau 6BK	6–3¾x4¼	Own UC12	U 4	No	Own	SF	R	6.80	44.2	10x3¼x¼	L
18		FB70 De L 3–4	2490	174	204	17000	5475	B7.50/20	DB7.50/20	Wau 6BK	6–3¾x4¼	Own UC6	U 4	No	Own	SF	R	7.40	47.0	10x3¼x¼	L
19		FB80 3½–4½	3010	174	204	22000	6525	B8.25/20	DB8.25/20	Wau 6MK	6–4¼x4¾	Own UC11	U 5	No	Own	SF	R	7.80	54.6	10x3¼x¼	L
20		FD90 4–5	3315	174	204	22000	7175	B9.00/20	DB9.00/20	Wau 6MK	6–4¼x4¾	Own UC11	U 5	No	Own	2F	R	8.40	58.8	10x3¼x¼	L
21		FD97 5–6	4355	192	222	26000	8235	B9.75/20	DB9.75/20	Wau 6SRL	6–4⅜x5½	Own UC2	U 4	Op	Own	2F	R	9.41	62.9	12x3¼x¼	L
22		FD115 6–7	4690	192	222	32000	8685	B9.75/20	DB9.75/20	Wau 6-125	6–4⅜x5½	Own UC2	U 4	Op	Own	2F	R	9.20	61.3	12x3¼x¼	L
23		FC100 5–6	4185	190	222	26000	7835	B9.75/20	DB9.75/20	Wau 6MZ	6–4¼x4¾	Own UC1	U 4	Op	Own	CD	R	8.30	54.0	12x3¼x¼	L
24		HC140 7–8	5360	186	216	36000	9485	B9.75/22	DB9.75/22	Wau 6SRL	6–4⅜x5½	Own UC2	U 4	Op	Own	CD	R	8.30	55.3	9¼x3¼x⅜	L
25		HC170 9–10	7480	196	225	44000	10485	B10.50/22	DB10.50/22	Wau 6RB	6–5x5¾	Own UC9	U 4	Op	Own	CD	R	9.44	51.3	9¼x3¼x⅜	L
26		(D) FD97D 5–6	***	192	222	26000	8985	B9.75/20	DB9.75/20	Wau 6D100	6–4⅜x5½	Own UC2	U 4	Op	Own	2F	R	9.41	62.9	12x3¼x¼	L
27		(D) FD97H 5–6	***	200	230	26000	9850	B9.75/20	DB9.75/20	Cum 6H Die	6–4⅞x6	Own UC2	U 4	Op	Own	2F	R	9.41	62.9	12x3¼x¼	L
28		(D) FD115D 6–7	***	200	230	32000	9785	B9.75/20	DB9.75/20	Wau 6D125	6–4¾x5½	Own UC2	U 4	Op	Own	2F	R	9.20	61.3	12x3¼x¼	L
29		(D) FD115H 6–7	***	200	230	32000	9685	B9.75/20	DB9.75/20	Cum 6H Die	6–4⅞x6	Own UC9	U 4	Op	Own	2F	R	9.41	50.0	12x3¼x¼	L
30		(D) FC100D 5–6	***	190	222	26000	8935	B9.75/20	DB9.75/20	Wau 6D100	6–4⅜x5½	Own UC2	U 4	Op	Own	CD	R	8.30	55.3	12x3¼x¼	L
31		(D) FC100H 5–6	***	200	230	26000	9210	B9.75/20	DB9.75/20	Cum 6H Die	6–4⅞x6	Own UC2	U 4	Op	Own	CD	R	8.30	54.0	12x3¼x¼	L
32		(D) HC140D 7–8	***	194	225	36000	10585	B9.75/22	DB9.75/22	Wau 6D125	6–4¾x5½	Own UC2	U 4	Op	Own	CD	R	8.30	55.3	9¼x3¼x⅜	L
33		(D) HC170H 9–10	***	196	225	44000	11085	B10.50/22	DB10.50/22	Cum 6H Die	6–4⅞x6	Own UC9	U 4	Op	Own	CD	R	9.44	51.3	9¼x3¼x⅜	L
34	Studebaker	T683 2–3	1045	183	183	13500	4560	B6.50/20	DB6.50/20	Own	6–3¼x4⅝	WG T9	U 4	No	Tim 54200	SF	H	6.80	43.5	8x2¾x¼	T
	Six-Wheelers																				
35	Sterling	FDT180 2C	10–10½	....	178	208	36000	11485	B9.75/20	DB9.75/20	Wau 6SRL	6–4¾x5½	Own UC2	U 4	Op	Own	2F	R	9.41	62.9	12x3¼x¼	L
36		FDT200 2C	12–12½	7670	178	208	40000	11985	B9.75/20	DB9.75/20	Wau 6-125	6–4¾x5½	Own UC2	U 4	Op	Own	2F	R	9.20	61.3	12x3¼x¼	L
37		FDT250 2C	16–16½	8855	186	216	50000	12985	B10.50/20	DB10.50/20	Wau 6RB	6–5x5¾	Own UC9	U 4	Op	Own	2F	R	9.20	50.0	12x3¼x¼	L
38		FCT180 2C	10–10½	7265	178	208	36000	11485	B9.75/20	DB9.75/20	Wau 6SRL	6–4¾x5½	Own UC2	U 4	Op	Own	CD	R	8.30	55.3	12x3¼x¼	L
39		FCT200 2C	12–12½	7685	178	208	40000	11985	B9.75/20	DB9.75/20	Wau 6-125	6–4¾x5½	Own UC2	U 4	Op	Own	CD	R	8.30	55.3	12x3¼x¼	L
40		FCT250 2C	16–16½	***	186	216	50000	12985	B10.50/20	DB10.50/20	Wau 6RB	6–5x5¾	Own UC9	U 4	Op	Own	CD	R	9.44	57.3	12x3¼x¼	L
41		HCS210 4R	12–18	***	182	198	55000	14685	P40x8	DP40x8	Wau 6RB	6–5x5¾	Own UC9	U 4	Op	Own	CD	R	10.0	42.3	9¼x3¼x⅜	L
42	(D)	FDT180D 2C	10–10½	***	178	208	36000	12585	B9.75/20	DB9.75/20	Wau 6D100	6–4¾x5½	Own UC2	U 4	Op	Own	2F	R	9.41	62.9	12x3¼x¼	L
43	(D)	FDT200D 2C	12–12½	***	186	216	40000	13055	B9.75/20	DB9.75/20	Wau 6D125	6–4¾x5½	Own UC2	U 4	Op	Own	2F	R	9.20	61.3	12x3¼x¼	L
44	(D)	FDT250D 2C	16–16½	***	186	216	50000	13835	B10.50/20	DB10.50/20	Wau 6D140	6–5x5½	Own UC9	U 4	Op	Own	2F	R	9.20	50.0	12x3¼x¼	L
45	(D)	FDT250H 2C	16–16½	***	186	216	50000	13580	B10.50/20	DB10.50/20	Cum 6H Die	6–4⅞x6	Own UC9	U 4	Op	Own	2F	R	9.20	50.0	12x3¼x¼	L
46	(D)	FCT180D 2C	10–10½	***	178	208	36000	12235	B9.75/20	DB9.75/20	Wau 6D100	6–4¾x5½	Own UC2	U 4	Op	Own	CD	R	8.30	55.3	12x3¼x¼	L
47	(D)	FCT200D 2C	12–12½	***	186	216	40000	13085	B9.75/20	DB9.75/20	Wau 6D125	6–4¾x5½	Own UC2	U 4	Op	Own	CD	R	8.30	55.3	12x3¼x¼	L
48	(D)	FCT250D 2C	16–16½	***	186	216	50000	13835	B10.50/20	DB10.50/20	Wau 6D140	6–5x5½	Own UC9	U 4	Op	Own	CD	R	9.44	51.3	12x3¼x¼	L
49	(D)	FCT250H 2C	16–16½	***	186	216	50000	13580	B10.50/20	DB10.50/20	Cum 6H Die	6–4⅞x6	Own UC9	U 4	Op	Own	CD	R	9.44	51.3	12x3¼x¼	L
50	(D)	HCS210H 4R	12–18	***	182	198	55000	15285	P40x8	DP40x8	Cum 6H Die	6–4⅞x6	Own UC9	U 4	Op	Own	CD	R	10.0	42.3	12x3¼x¼	L

Makers' Changes in Specifications Published in October

ARMLEDER—Model 11H, Engine is Con. 20C; was Con. 10C. Models 21Ha, 31Ha, 41Ha Brake H.P. is 78 at 2400 r.p.m.; was 76 at 2200 r.p.m. Model 61Ha Brake H.P. is 85 at 2400; was 80 at 2200.

CORBITT—Model 1348T, Engine is Lyc. GGC; was Lyc. GFC; Transmission is Fu. 5A29; was Cla. 5A29; Gear Ratio in low is 51.2; Rear springs are 54 x 3; were 50 x 2½. Model 1348, Rear springs are 54 x 3; were 50 x 2½.

DODGE BROS.—Model KC, Side Rail dimensions are 5 x 2 x 7/64; were 5 x 2 x .

FAGEOL—All models, Universals Make is Spi.; was Blo. Models 370 HP, 370 SR, 370 RA, 470 HP, Transmission Make and Model is BL 5341; was BL 734.

FEDERAL—Models 15, 15X, 18X, 20, 25, Carburetor Make is Zen.; was Car.

GENERAL MOTORS—Model T-23, Chassis Wt. stripped is 4060; was 4130. Model T-84SX, Chassis price is 6200; was 5175. Std and Max. wheelbase is 190; was 204. Chassis wt. is 9750; was 9850. Gear Ratio in high is 10.2; was 10.1. Gear Ratio in low is 64.8; was 64.2. Side Rail dimensions are 9 1/16 x 3½ x 5/16; was 9 1/16 x 4 x 5/16. Compression Ratio is 4.7; was 4.6. Carburetor make is Zen; was Str. Service brake lining area is 615; was 594. Cab to rear of frame is 215; was 210. Models T-51, T-51W, T-51H, T-61, width of Frame is 34 1/16; was 34. Models T-73, T-73H, T-74H, width of Frame is 34; was 34 1/8. T-74H, Rear Springs are 54 x 3; were 50 x 3. T-83, T-84, width of frame is 34 1/8; was 34. T-75H, chassis price is 5790; was 6610.

HUG—Gear Ratio in High Model 23A is 5.03; was 6.37. Model 23T is 5.66; was 7.16. Model 70 is 7.18; was 9.14. Model 87K is 6.71; was 8.95. Model 87Q is 7.27; was 9.16. Model 43L is 5.07; was 9.16. Model 97L is 8.84; was 11.1. Gear Ratio in Low, Model 87Q is 134; was 99. Model 43L is 45.0; was 64.0. Model 97L is 163; was 178.

HUG—Model 15A, Camshaft drive is G; was C. Models 15A, 15D, 15T, Front Axle Make and Model is Cla F308; was Cla F212. Model 23S Service Brake Lining Area is 348; was 318. Model 43L Rear Spring is 48 x 3; was 54⅞ x 3.

INDIANA—Model 95DR, Chassis price is 1525; was 1275.

KLEIBER—Chassis prices, Model 80 is 1900; was 1500. Model 100 is 2100; was 1775. Model 120 is 2900; was 2500. Model 140 is 3500; was 3000. Model 210 is 4875; was 3800. Model KDB-6 was KD-4, price is 5750; was 5400. Model KD-6 is 9200; was 6000.

SCHACHT—Models 20HA, 25HA, 28HA, 30HA H. P. is 78 at 2400; was 73 at 2200. Model 35HA, H. P. is 85

Listing of All Trucks in Current Production Will Be Given in January

Line Number	ENGINE DETAILS: Displacement	Comp. Ratio	Torque lb. ft.	N.A.C.C. Rated H.P.	Max. Brake H.P. at R.P.M. Given	Valve Argmt.	Camshaft Drive	Piston Material	MAIN BEARINGS: Number and Diameter	MAIN BEARINGS: Length	Oiling System Type	Governor Make	FUEL SYST.: Carburetors Make	FUEL SYST.: Fuel Feed	ELEC-TRICAL: Ignition System Make	ELEC-TRICAL: Generator, Starter Make	Clutch Type and Make	Radiator Make	Universals Make	FRONT AXLE: Make and Model	Steering Gear Make	BRAKES: SERVICE: Make	Location	Type Operat'n	Lining Area	Drum Material	Hand Location Type	BODY MOUNTING DATA: Cab to Rear of Frame	Cab to Rear Axle	Width of Frame	SPRINGS: Front	Rear	Auxiliary Type
1	318	...	202	36.0	80–	L	G	N	7–2⅜	13	CC	No	Zen	M	AL	AL	BL	GO	Spi	Col 5500A7	Ros	L4IH			365	G	CD	108	69	34	40x2½	54x2½	½
2	228	5.0	148	27.3	63–2800	L	G	C	7–2½	10 11/32	PC	No	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F264	Ros	L4IH	254	a	TX	93	51½	34	42x2	50x2½	½
3	228	5.4	164	31.5	68–2800	L	G	C	7–2½	10 11/32	PC	No	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F264	Ros	L4IHV	254	a	TX	93	51½	34	42x2	50x2½	½
4	228	5.0	148	27.3	63–2800	L	G	C	7–2½	10 11/32	PC	No	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F264	Ros	L4IHV	265	a	TX	93	51½	34	42x2	50x2½	½
5	228	5.0	148	27.3	63–2800	L	G	C	7–2½	10 11/32	PC	No	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F308	Ros	L4IHV	276	a	TX	96	54	34	42x2½	53x2½	½
6	263	5.4	164	31.5	68–2800	L	G	A	7–2½	10 11/32	PC	Ha	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F308	Ros	L4IHV	350	a	TX	126	72	34	42x2½	53x2½	½
7	282	5.35	176	33.7	73–2800	L	G	A	7–2½	10 11/32	PC	Ha	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F308	Ros	L4IHV	350	a	TX	126	72	34	42x2½	53x2½	½
8	282	5.35	176	33.7	73–2800	L	G	A	7–2½	10 11/32	PC	Ha	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F308	Ros	L4IHV	350	a	TD	126	72	34	42x2½	53x2½	½
9	320	5.3	204	38.4	84–2800	L	G	A	7–2½	10 11/32	PC	Ha	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F308	Eos	L4IHV	350	a	TD	126	72	34	42x2½	53x2½	½
10	358	5.0	260	38.4	104–2800	L	G	A	7–2⅝	13¼	PC	Ha	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F322	Ros	L4IHV	350	a	TD	168	102	34	42x2½	56x3	½
11	404	5.0	294	43.3	118–2800	L	G	A	7–2⅝	13¼	PC	Ha	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F322	Ros	L4IHV	408	a	TD	168	102	34	42x2½	56x3	½
12	404	5.0	294	43.3	118–2800	L	G	A	7–2⅝	13¼	PC	Ha	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F322	Ros	L4IHV	408	a	TD	168	102	34	42x2½	56x3	½
13	404	5.0	294	43.3	118–2800	L	G	A	7–2⅝	13¼	PC	Ha	Zen	M	AL	AL	P.BB	Mo	Spi	Cla F322	Ros	L4IHV	499	a	TD	168	102	34	42x2½	56x3	½
14	230	5.3	152	23.4	80–3200	L	C	A	7–2⅝	12	CC	No	Car	M	AL	AL	P.BB	Fe	Spi	Own	Ros	L4IH	170	C	2I	62 11/16	25 11/16	47½	36¾x2	55½x2	N
15	214	5.0	137	28.0	72–3300	L	C	A	4–2⅜	6⅜	CC	No	Zen	M	DR	DR	P.Lo	Pe	Spi	Tim 30000H	Ros	L4IH	269	P	TX	96	57	34	38x2¼	50x2½	N
16	282	5.4	185	33.8	81–2800	L	G	C	7–2⅝	10¼	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 33000H	Ros	L4IH	306	P	TX	144	91	34	42x2½	57½x2½	½
17	282	5.4	185	33.8	81–2800	L	G	C	7–2⅝	10¼	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 33000H	Ros	L4IHV	352	a	TX	144	91	34	42x2½	57½x2½	½
18	282	5.4	185	33.8	81–2800	L	G	C	7–2⅝	10¼	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 33000H	Ros	L4IHV	352	a	TX	144	91	34	42x2½	60x3	½
19	381	6.5	240	41.0	83–2250	L	G	C	7–2⅝	12½	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 33000H	Han	L4IHV	394	a	TX	144	91	34	42x2½	60x3	½
20	381	6.5	240	41.0	83–2250	L	G	C	7–2⅝	12½	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 33000H	Han	L4IHV	396	a	TX	144	91	34	42x2½	60x3	½
21	462	4.5	300	46.0	97–2000	L	G	C	7–3	13⅜	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 35100H	Ros	L4IHV	486	a	TX	171	107	34	48x3	60x3	½
22	462	5.0	324	46.0	123–2300	F	G	A	7–3	13⅜	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 35100H	Ros	L4IHV	486	a	TX	171	107	34	48x3	60x3	½
23	404	6.0	252	42.5	82–2000	L	G	C	7–2⅝	12½	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 35000N	Ros	O2IMV	576	s	TX	169	105	34	48x3	60x3	½
24	462	4.5	300	46.0	97–2000	L	G	C	7–3	13⅜	CC	En	Zen	M	DR	DR	P.Ow	Pe	Spi	Tim 26452N	Ros	O2IMV	698	s	JX	168	107	34	48x3	60x3	½
25	677	4.8	440	60.0	124–1800	L	G	C	4–3½	11⅜	CC	En	Zen	M	DR	DR	D.Ow	Pe	Spi	Tim 27452N	Ros	O2IMV	666	s	JX	170	109	34	48x3	60x3	½
26	462	17.	275	46.0	100–2200	H	G	A	7–3⅜	13¾	FP	En	No	M	CI	LN	P.Ow	Mo	Spi	Tim 35100H	Ros	L4IHV	486	a	TX	171	107	34	48x3	60x3	½
27	672	17.	420	57.0	125–1800	H	G	C	7–3¼	16½	CC	En	No	M	CI	DR	P.Ow	Mo	Spi	Tim 35100H	Ros	L4IHV	486	a	TX	171	107	34	48x3	60x3	½
28	585	17.	350	54.1	122–2000	H	G	A	7–3⅜	18¾	FP	En	No	M	CI	LN	P.Ow	Mo	Spi	Tim 35100H	Ros	L4IHV	486	a	TX	171	107	34	48x3	60x3	½
29	672	17.	420	57.0	125–1800	H	G	C	7–3¼	16½	CC	En	No	M	CI	DR	D.Ow	Mo	Spi	Tim 35100H	Ros	L4IHV	486	a	TX	171	107	34	48x3	60x3	½
30	462	17.	275	46.0	100–2200	H	G	A	7–3⅜	13¾	FP	En	No	M	CI	LN	P.Ow	Mo	Spi	Tim 35000N	Ros	O2IMV	576	s	TX	169	105	34	48x3	60x3	½
31	672	17.	420	57.0	125–1800	H	G	C	7–3¼	16½	CC	En	No	M	CI	DR	P.Ow	Mo	Spi	Tim 35000N	Ros	O2IMV	576	s	TX	169	105	34	48x3	60x3	½
32	585	17.	350	54.1	122–2000	H	G	A	7–3⅜	18¾	FP	En	No	M	CI	LN	P.Ow	Pe	Spi	Tim 26452N	Ros	O2IMV	698	s	JX	168	107	34	48x3	60x3	½
33	672	17.	420	57.0	125–1800	H	G	C	7–3¼	16½	CC	En	No	M	CI	DR	D.Ow	Pe	Spi	Tim 27452N	Ros	O2IMV	666	s	JX	170	109	34	48x3	60x3	½
34	230	4.6	154	25.4	75–3200	L	G	C	4–2½	8⅛	CC	Ha	Car	M	DR	DR	dp.Lo	Mc	MM	Tim 31020	Ros	B4IMV	284	D	4I	167 7/16	102	34 7/16	39x2	56x3	½
35	462	4.5	300	46.0	97–2000	L	G	C	7–3	13¾	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 26450N	Ros	O4rIA	808	a	TX	191	93	34	48x3	29x3	N
36	462	5.0	324	46.0	123–2300	F	G	A	7–3	13⅜	CC	En	Zen	M	M Y	DR	P.Ow	Mo	Spi	Tim 26450N	Ros	O4rIA	1056	a	TX	191	93	34	48x3	29x3	N
37	677	4.8	440	60.0	124–1800	L	G	C	4–3½	11⅜	CC	En	Zen	M	DR	DR	D.Ow	Mo	Spi	Tim 27450N	Ros	O4rIA	1056	a	TX	192	93	34	48x3	29x3	N
38	462	4.5	300	46.0	97–2000	L	G	C	7–3	13⅜	CC	En	Zen	M	DR	DR	P.Ow	Mo	Spi	Tim 26450N	Ros	O4rIA	1152	s	JX	191	93	34	48x3	24½x3	N
39	462	5.0	324	46.0	123–2300	F	G	A	7–3	13⅜	CC	En	Zen	M	MY	DR	P.Ow	Mo	Spi	Tim 26450N	Ros	O4rIA	1152	s	JX	191	93	34	48x3	24½x3	N
40	677	4.8	440	60.0	124–1800	L	G	C	4–3½	11¾	CC	En	Zen	M	DR	DR	D.Ow	Mo	Spi	Tim 27450N	Ros	O4rIA	1152	s	JX	192	93	34	48x3	24½x3	N
41	677	4.8	440	60.0	124–1800	L	G	C	4–3½	11¾	CC	En	Zen	M	RB	DR	D.Ow	Pe	Spi	Tim 27450N	Ros	Ws4rIA	792	s	FX	182	95	34	48x3	59¾x3½	N
42	462	17.	275	46.0	100–2200	H	G	A	7–3⅜	13¾	FP	En	No	M	CI	LN	P.Ow	Mo	Spi	Tim 26450N	Ros	O4rIA	808	a	TX	191	93	34	48x3	29x3	N
43	585	17.	350	54.1	122–2000	H	G	A	7–3⅜	18¾	FP	En	No	M	CI	LN	P.Ow	Mo	Spi	Tim 26450N	Ros	O4rIA	1056	a	TX	191	93	34	48x3	29x3	N
44	648	17.	410	60.0	138–2000	H	G	A	7–3⅜	18¾	FP	En	No	M	CI	LN	D.Ow	Mo	Spi	Tim 27450N	Ros	O4rIA	1056	a	TX	192	93	34	48x3	29x3	N
45	672	17.	420	57.0	125–1800	H	G	C	7–3¼	16½	CC	En	No	M	CI	DR	D.Ow	Mo	Spi	Tim 27450N	Ros	O4rIA	1056	a	TX	192	93	34	48x3	29x3	N
46	462	17.	275	46.0	100–2200	H	G	A	7–3⅜	13¾	FP	En	No	M	CI	LN	P.Ow	Mo	Spi	Tim 26450N	Ros	O4rIA	1152	s	TX	191	93	34	48x3	24½x3	N
47	585	17.	350	54.1	122–2000	H	G	A	7–3⅜	18¾	FP	En	No	M	CI	LN	P.Ow	Mo	Spi	Tim 26450N	Ros	O4rIA	1152	s	JX	191	93	34	48x3	24½x3	N
48	648	17.	410	60.0	138–2000	H	G	A	7–3⅜	18¾	FP	En	No	M	CI	LN	D.Ow	Mo	Spi	Tim 27450N	Ros	O4rIA	1152	s	JX	192	93	34	48x3	24½x3	N
49	672	17.	420	57.0	125–1800	H	G	C	7–3¼	16½	CC	En	No	M	CI	DR	D.Ow	Mo	Spi	Tim 27450N	Ros	O4rIA	1152	s	JX	192	93	34	48x3	24½x3	N
50	672	17.	420	57.0	125–1800	H	G	C	7–3¼	16½	CC	En	No	M	CI	DR	D.Ow	Pe	Spi	Tim 27450N	Ros	Ws4rIA	792	s	FX	182	95	34	48x3	59¾x3½	N

at 2400; was 80 at 2200.

STEWART—Model 47H, Eng. is Wau; was Lyc. Bore and Stroke is 3⅜ x 4¼; was 3⅜ x 4½. Piston Displacement is 228; was 242.

SIX WHEELERS

CORBITT—Model 16SFD8, Carburetor is Str; was Zen.

FAGEOL—All Models, Universal Make is Spi; was Blo.

FEDERAL—Models 22 4R, 21 2R, Carburetor Make is Zen; was Car.

HUG—Gear Ratio in High Model 97LD 4R is 6.52; was 9.11. Model 99 4R is 7.66; was 10.3. Model 97LD 4R, Compression Ratio is 4.8; was 4.7.

KLEIBER—Chassis Prices, Model 81 is 3200; was 2500. Model 121 is 4200; was 3300. Model 141 is 5000; was 4400.

MORELAND—Model TD34, Eng. Make and Model is Wau 6RB; was Wau RR.

ELECTRIC TRUCKS

WALKER—Model 401, Gross Vehicle Weight is 6850; was 6250. Model 404, Gross Vehicle Weight is 7000; was 6400. Chassis Weight is 2200; was 2400. Tire size Front and Rear is P32 x 6; was P30 x 5. Model 406, Gross Vehicle Weight is 7200; was 6800. Chassis Weight is 2400; was 2650.

260 Million Lb. Freight

(CONTINUED FROM PAGE 48)

were in convenient locations had been tried and all of them had either skipped points that require lubrication or they had used unsuitable lubricants. Now the shop proposes to equip a service truck with all the necessary lubricants in drums. Motor oil will be metered directly from the drum into the engine. A motor driven compressor will supply the power.

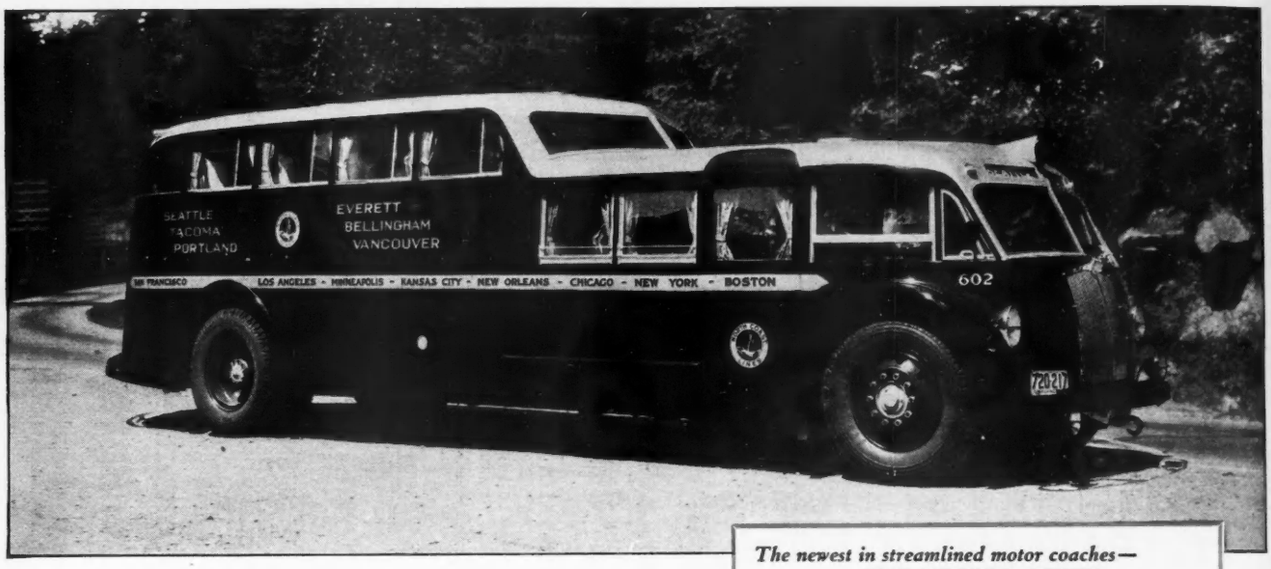
Then with this truck instead of waiting for the over-the-road trucks to get into the central shop the lubrication crew will be able to go to the various terminals where they will operate with their usual deftness and finesse. It will be possible to bring the service car along side a truck when it is loading at the platform and lubricates it without loss of time for either the lubrication man or the truck and driver. It will be possible to catch when it is stored in the garage without moving it into the shop where space may be valuable at the moment.

IT will be possible to work on the pick-up trucks at night and the highway jobs during the day. The men on the truck will be charged with the responsibility of seeing that trucks are lubricated in New York, Bridgeport, New Haven, Waterbury, Hartford, Stamford, New London and Springfield.

Quite an orderly operation this Adley Express Co., with quite an orderly shop to make the rest possible. It takes 20 men to run a shop the way Mickey Adley and Morgan run it.

NORTH COAST LINES BUSES

use Champion Spark Plugs exclusively



The newest in streamlined motor coaches—
THE NEWELL-SWIFT
FULL STREAMLINED COACH
Built on the "deck and one-half" plan. Carries 32 passengers. Uses the new Swift Electro Pneumatic Gear Shift. Powered with 180 H. P. Hall-Scott horizontal type engine located amidship, under the floor of main deck. So situated it is imperative that the best possible spark plug service is secured. Equipped with Champion Spark Plugs No. 13 and No. 18. One of a new fleet of six coaches now under construction for North Coast Lines.

The North Coast Lines, large Pacific Coast bus line operating 85 large buses between Portland, Seattle and Vancouver, use dependable Champion Spark Plugs exclusively. Only three types of Champions are required to meet the widely diversified equipment and operating conditions encountered in 5,000,000 bus miles a year over continuously irregular terrain.

North Coast Lines, pioneers of the "deck and one half" type coach, have developed in their Newell-Swift Full Streamlined Coach the newest and finest expression of this type of passenger and express coach.

Powered by the 180 H. P. Hall-Scott horizontal engine, located amidship under the floor of the main deck, it is obviously imperative that the utmost in spark plug dependability and service be obtained. Champions fulfill every requirement based on numerous tests and a background of five years exclusive Champion equipment on other North Coast Lines buses.

Alert, progressive, and exacting operators like North Coast Lines know that it pays to specify Champions. Dealing as he does in terms of bus or ton miles the fleet owner or bus operator must have the utmost in power, speed, economy and dependability from spark plugs. That's why the leaders specify Champions.

If you have a spark plug problem with trucks, buses or commercial vehicles of any kind, the Champion representative in your territory will welcome an opportunity to consult with you. Write factory direct.

USE THE
SPARK PLUGS
CHAMPIONS
USE

CHAMPION SPARK PLUG COMPANY
TOLEDO • OHIO

NRA CODE APEM 34-01

CHAMPION
EXTRA-RANGE SPARK PLUGS

Stewart

announces

NEW LOWER PRICED

2 ton truck $895

CHASSIS F. O. B. BUFFALO

A sensational truck at a surprisingly low price. No sacrifice of the usual STEWART quality. No compromise with the features that have long made STEWARTS famous for long life and economical operation. Compare it side by side with any other truck. You'll be convinced that it is "America's Greater Truck Value" . . . honestly built, honestly rated, honestly priced. If you're looking for a truck that will stay on the road and out of the repair shop, see this newest STEWART value.

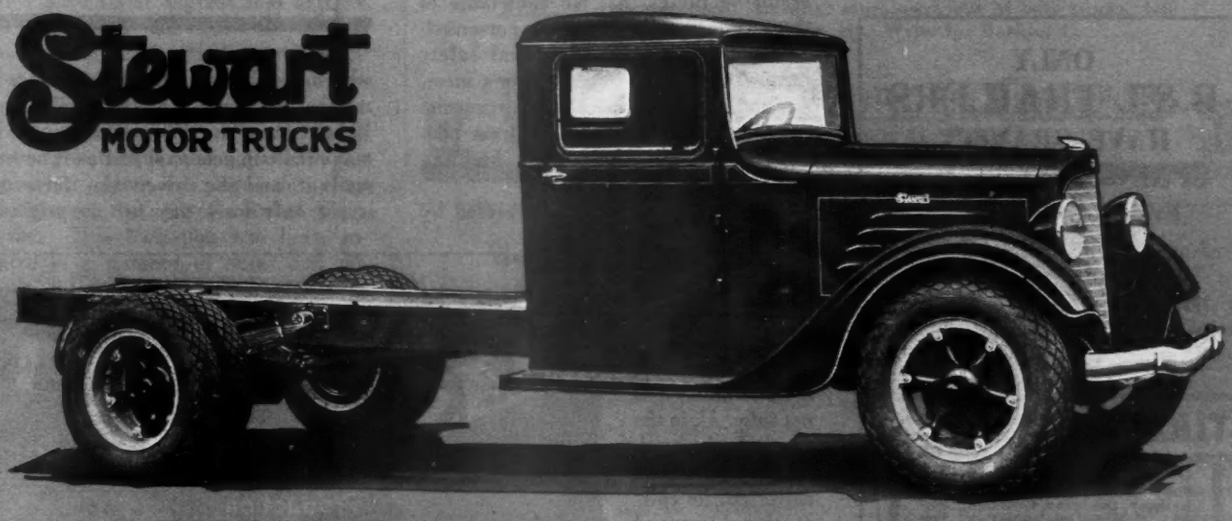
STEWART MOTOR CORPORATION
Buffalo - - - - New York

MODELS

1	Ton	6 Cyl.
1½	Ton	6 Cyl.
2	Ton	6 Cyl.
2½	Ton	6 Cyl.
3	Ton	6 and 8 Cyl.
3½	Ton	6 and 8 Cyl.
3½-5	Ton	6 and 8 Cyl.
5-6	Ton	6 Cyl.
7-8	Ton	6 Cyl.

Also see the New 1½-Ton at $695

Stewart MOTOR TRUCKS



SPECIFICATIONS

Wheelbase Lengths: 134", 145", 160", 176", 190". 6 Cylinder Motor. Removable bloc. Side mounted water pump. Steel valve inserts. Stromberg carburetor. Roller bearing universal joints. Ross roller mounted steering. Full floating rear axle. Helper springs. Hydraulic brakes. 6.50-20 heavy duty tires, dual rear, 7½" frame.

Stewart Trucks Have Won—By Costing Less To Run

MAINTENANCE COSTS SLASHED

By Regrooving Smooth Tires

WITH THE STACKHOUSE

"Pull-Type" Electric Tire Groover

NEW!
SPEEDY!
EFFICIENT!
PROFITABLE!

SAFETY!
TRACTION!
APPEARANCE!
INCREASED MILEAGE!

●

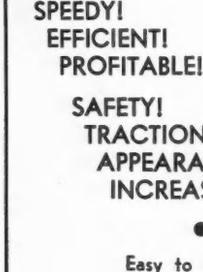
Easy to Operate
Fully Guaranteed

Write for Free Booklet

"Regrooving the Way to Increased Profits"

BAILEY & COMPANY
219 N. 63rd St., Philadelphia, Pa.

"A Tight Connection All the Time"



TRADEMARK
NOC-OUT
THE
HOSE CLAMP
WITH THE THUMBSCREW

Standard equipment hose clamp of the automotive and airplane industry. Your jobber has them.

4307 W. 24TH PL. **WITTEK**
CHICAGO, ILL. MFG. CO.

ONLY
B.&J. TRAILERS
HAVE GRAVITY SPRING SUSPENSION

Every Demonstration Becomes a Sale

Write for bulletin

B. & J. TRAILER CO.
3915 S. Michigan Ave. Chicago

TIRE GROOVING

U. S. Post Office, U. S. Treasury, Shell Petroleum, Cincinnati Street Railway, Goodyear, Goodrich, General, International—just a few fleet operators who are getting 10,000 and more SAFE NON-SKID extra miles by using KWICK-KUT PATTERN TIRE GROOVERS.

"PROOF" is sent free. New complete catalog. Write for FREE TRIAL OFFER.

Kwick-Kut Mfg. Co., 3840 Arsenal St. St. Louis, Mo.

Saves Money for FLEETS

How I Road-Test Drivers

(CONTINUED FROM PAGE 21)

tady, Albany and Utica. The runs are split up as follows: A driver has the wheel for 6 hours. His companion, who is not a helper but a mechanic-driver, either rests in the seat or sleeps in the bunk during this time. At the end of 6 hours he takes over the controls and the first driver is at ease. The third 6 hours is for unloading and loading at the destination and the final 12 hours for return on the same schedule as the trip out.

WHEN the new driver is assigned to a run it always happens that one of the old hands who is absolutely trustworthy is the companion driver and it seems that he is not always asleep when he appears to be. Following the run the experienced driver turns in a report on the new one. He uses the same form that I used in the original driving test but not the same blank. No one reporting is permitted to see the report of another examiner. No driver is required to do any writing. He merely checks the faults of driving on the newcomer if he finds any. For the first three trips the new driver finds a different driver for a partner. If he bothered to check up he would find that one of them is from his local chapter of the union and the other two are from different divisions. In this manner the chance of biased opinion is eliminated.

So far I have mentioned only the things that this company demands of drivers and now it is only fair to enumerate the things that we contribute to the efficiency of our driver personnel. About once a month a formal safety lecture is delivered at a driver's meeting and instead of merely exhorting the drivers to be careful the address contains some helpful facts on highway operation.

Every highway truck is inspected by the shop after each trip and it must be satisfactory to the driver. Any driver may refuse to take a truck out if he believes it is not safe. If, in the dispatcher's anxiety to get the load delivered, he calls another driver and this driver takes the truck and makes the trip, the matter is brought before me. When the truck returns, I ride the truck myself, and the driver who made the trip must demonstrate to me that the truck is mechanically okay. If he cannot, the driver who refused to make the trip gets paid just as if he had made it, and the driver who did make it not only loses pay for the trip but

THE NEW
FORD V·8 TRUCK

Gives you all these features
- Full-floating rear axle
- Special 80-horsepower V-8 Engine
- Heavy-duty Clutch
- Trouble-free 4-speed Transmission

No compromise with passenger car design. A real truck...made of genuine truck parts

Increase Shipping Floor Capacity

Make Extra Trips With Trucks You Have Now

BY USING

"ROLOFF" DEMOUNTABLE BODIES

ASK US HOW

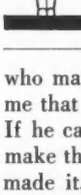
ROLOFF, INC.
KENDALL SQUARE
CAMBRIDGE·MASS.

STOP THAT WASTE! *from* IDLING MOTORS!

MOTO-KOP *stops* the motor when the truck is idle. Positive, Tamper-proof. Pays for itself in 3 months in reduced gas and maintenance costs.

The MOTO-KOP Automatic Ignition Control

PATENT PENDING



ROBIE AUTOMOTIVE ENGINEERING CORP.
1040 Boylston St., Boston

LUCE
MASTERCRAFT
TRUCK BODIES

Production
and
Custom Built
Body Equipment
Vocationally Designed

LUCE MANUFACTURING CO.
Lansing, Michigan

he gets fined for taking an unsafe vehicle out on the highway against orders.

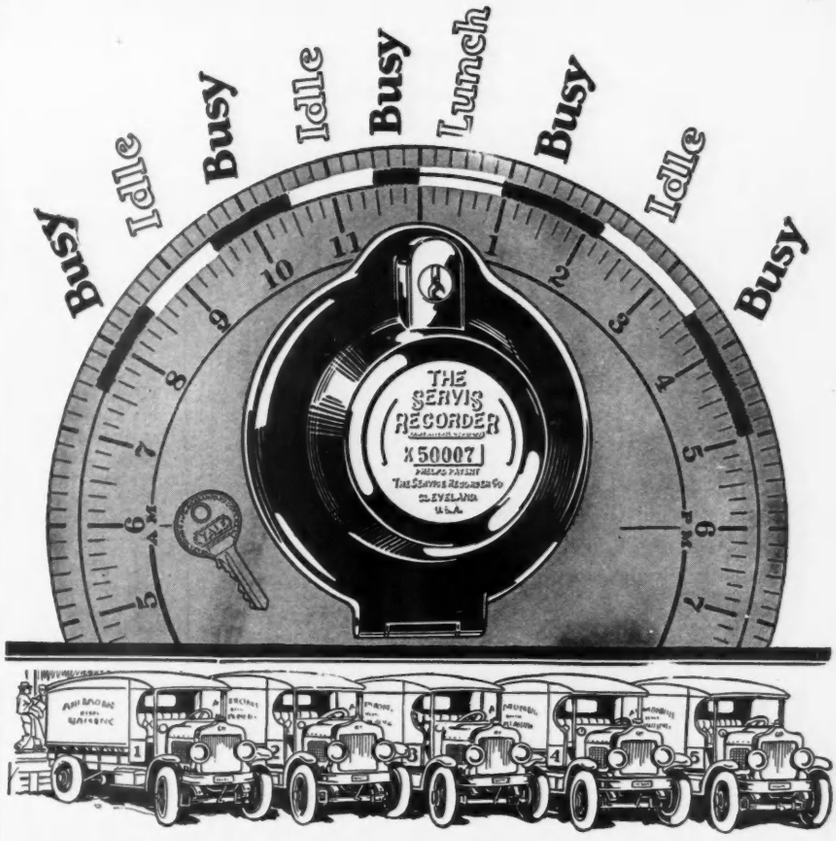
All the sleeping cabs have an electric fan to make the rest period more refreshing. Cigarette lighters are being installed in the cabs on the theory that telling a driver not to smoke on the long night runs is like telling a duck not to go out in wet weather, and that if the driver is going to smoke it is safer to light his favorite brand with a lighter than it is to have him look into a match flare and be momentarily blinded while he has both hands off the wheel.

All of these measures have produced results. The over-the-road fleet has had one accident in the last year. The trucks average about 725 miles each per week. The one accident was a "peach." If we are going to have accidents, I do not see how they can be of any other variety when the driver is starting, moving and stopping about 35,000 lb. of payload in the form of 160 half barrels of beer. The science is not in reducing the damage from accidents—it is in preventing them.

There are no spotters to check the behavior of the drivers who transport "Ebling's Extra." We don't believe in them. In our opinion the value of a road inspector is lost as soon as his identity becomes known. We are also of the opinion that as long as drivers behave, the inspectors appear to be loafing and in their desire to appear to be doing something they are apt to be over-zealous and the result is false accusations.

INSTEAD of employing road inspectors I have spent a great real of time cultivating the acquaintance of the commanding officers of the state police of the states in which we operate, as well as the precinct commanders of the New York police. The officers of these forces are invited through their superiors to report any legal or safety infraction on the part of a Rubel driver to me. This invitation has been accepted in a number of cases and the results have been very satisfactory. It is pretty hard to try to kid the boss when he tells you the day, the hour and the place that you slipped, and the police reports in every case have given me all of this information.

The trucks as a matter of advertising policy are very well lighted at night. Some of them have as many as 32 separate lights on them and all of them have a search light mounted on the top of the cab which throws a light on the trade mark on the front of the semi-trailer. This lighting makes for visibility and we all agree that it has some effect on the accident rate although no one has been able to figure out just how much.



KEEPING MOTOR TRUCKS BUSY

That's Been Our Business for the Last 21 Years!

And this is how we do it.

We give you a "picture" of the work of your truck for the past 24 hours. Busy time is recorded automatically on a chart. The chart is inside the little *Servis Recorder* and the *Servis Recorder*, by the way, is attached to any truck merely by a couple of screws. By the way, it's a wonderful check on OVERTIME.

See the idle time! *These delays stare out at you.* And they get attention! Results: more work out of your trucks, less speeding, better service, etc. Write for Booklet L.

THE SERVICE RECORDER COMPANY
CLEVELAND - OHIO - U.S.A.

More Miles from Gas and Oil

(CONTINUED FROM PAGE 23)

bearing surfaces than do the oils better adapted to winter operation. Several tests were cited in which it took as much as 25 seconds for the lubricating oil to reach the crankshaft bearings, and when it did it represented quite a power loss through friction because of its viscous state.

IT was on this subject that the discussion of oil pressure gages arose. During the discussion it developed that the oil gage is misleading because of the mistake some operators make of assuming that pressure and circulation are synonymous. It is possible to have pressure without circulation and increasing pressure on engines not in good mechanical condition is sometimes disastrous from a consumption standpoint. Since engine bearings have almost as much to do with oil pressure as does the oil pump and since worn piston rings will not control the excess splash caused by high pressure and loose bearings, a lot of oil goes up in smoke where it does no good at all.

Dr. Geniesse did say that the use of 10 W and 20 W oil would result in greater oil consumption but he added that other things being equal the additional cost of the oil would be more than offset by the increase in fuel economy due to the use of light oils.

Take a tip from the man behind the wheel

"Like most bus and truck drivers, I am anxious to render good service to my employers and to their customers. Getting there, and back, on time—avoiding time-consuming mechanical mishaps—delivering my load of passengers or merchandise safely—are a pride with me. A long, clean record of efficiency is worth money to me as well as to the concern I serve.

"But I cannot be accountable for the careful servicing of my vehicle. The sureness of its brakes, the unfailing and economical performance of its motor, *the guarding of tires against blow-outs and excessive wear due to improper inflation*—are matters which rest mainly upon the men in the garage *and the equipment which is provided them.*

"Speedy inflation of tires and keeping them positively air-sealed while on the road is mighty important. It helps to avoid many an annoying delay enroute. I've seen those ingenious little Schrader valve caps called 'Dublcheks'—an excellent means for providing a secondary air-seal and for adding air without a lot of fussing and fumbling. . . . Air shoots in right through the Dublchek. Nothing to unscrew, replace, become lost—or invite neglect!

"I know that every truck or bus fleet owner can save himself a lot of money and worry by seeing that all his tire valves are re-equipped at reasonable intervals with fresh Schrader Valve Cores . . . and then protected with Schrader Dublcheks."

Schrader Valve Cores (standard of the tire industry) and Schrader Dublcheks are small in size and cost, but mighty in money-saving service. Get them from your regular supplier of tire or automotive accessories. A. Schrader's Son, Inc., Brooklyn, N. Y.; Toronto, Canada —*Makers of pneumatic valves since 1844.*

Schrader

Reg. U. S. Pat. Off.

TIRE-SAVING VALVES, CAPS AND GAUGES

"Be sure it's a Schrader—Look for the name"

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

of COMMERCIAL CAR JOURNAL, published monthly at Philadelphia Pa., for October 1, 1934

STATE OF PENNSYLVANIA } ss.
COUNTY OF PHILADELPHIA }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared C. A. Musselman, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the COMMERCIAL CAR JOURNAL, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Chilton Company, 56th & Chestnut Sts., Philadelphia, Pa.; Editor, George T. Hook, Montgomery Pike, Gulph Mills, Pa.; Managing Editor, Julian Chase, 20 S. 36th St., Philadelphia; Business Manager, C. A. Musselman, Sycamore Ave. & Orchard Way, Merion, Pa.

2. That the owner is (if the publication is owned by an individual his name and address, or if owned by more than one individual the name and address of each, should be given below; if the publication is owned by a corporation the name of the corporation and the names and addresses of the stockholders owning or holding one per cent or more of the total amount of stock should be given) United Publishers Corporation, 239 West 39th Street, New York City.

United Publishers Corp., Stockholders in excess of 1%
John Blair Moffett, 1608 Walnut Street, Philadelphia, Pa.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (if there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is..... (This information is required from daily publications only.)

C. A. MUSSELMAN, Signature of Business Manager.

Sworn to and subscribed before me this 28th day of September, 1934.

(Seal) JOHN A. CLEMENTS,
Notary Public.

(My commission expires March 9, 1935.)